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Guidance for the Reregistration of Pesticide Products Containing Orzyalin as the Active Ingredient

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Guidance for the Reregistration of Pesticide Products Containing ORYZALIN as the Active Ingredient

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GUIDANCE FOR THE REREGISTRATION OF PESTICIDE PRODUCTS (REGISTRATION STANDARD)

CONTAINING

AS THE ACTIVE INGREDIENT

ORYZALIN
Case number: GS-0186

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDE PROGRAMS

WASHINGTON, D.C. 20460

June 1987

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INTRODUCTION

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), Section 3(g), directs the Environmental Protection Agency (EPA) to reregister all pesticides as expeditiously as possible.

To carry out this task, EPA has established the Registration Standards program, which reviews all pesticide products containing active ingredients first registered before January 1, 1977. Pesticides are reviewed in use clusters which have been ranked to give earliest review to pesticides used on food and feed crops.

The Registration Standards program involves a thorough review of the scientific data base underlying pesticide registrations and an identification of essential but missing studies which may not have been required when the product was initially registered or studies that are now considered insufficient. EPA's reassessment results in the development of a regulatory position, contained in a Registration Standard, on each pesticide and its uses. The Agency may require the registrant to modify product labels to provide additional precautionary statements, restrict the use of the pesticide to certified applicators, provide reentry intervals, modify uses or formulation types, specify certain packaging limitations, or other requirements to assure that proper use of the pesticide will not result in unreasonable adverse effects on the environment.

The scientific review, which is not contained in the Registration Standard, but is available from the Freedom of Information Office, EPA, concentrates on the technical grade of the active ingredient and identifies missing generic data. However, during the review of these data, the Agency is also looking for potential hazards that may be associated with the end-use (formulated) products that contain the active ingredient. If the Agency has serious concerns, the end-use products will be addressed as part of the Registration Standards program and regulatory actions, to the extent necessary to protect the public, will be proposed.

This Registration Standard contains the results of the Agency's review of all registered manufacturing-use products (MPs) containing oryzalin as the sole active ingredient. During this review, the Agency evaluated all MPs and Section 3 and 24(c) uses registered for oryzalin.

Part I, Regulatory Assessment, of this Standard contains a description of oryzalin and a summary of the Agency's assessment of the chemical. This is followed by a more thorough discussion of the data base and the resulting regulatory position.

Part II, Requirements for Registration, of the Registration Standard addresses the necessary requirements for maintaining registrations of products containing oryzalin, along with the instructions for submission of the data and information to the Agency.

PART I. REGULATORY ASSESSMENT

The Agency has conducted a thorough review of the scientific data base on orzyalin. This Part of the Standard sets forth the results of that review beginning with a description of the chemical and its uses, followed by a discussion of the data base and the resultant regulatory position. A summary of the Agency's review and position precedes the discussion.

A. DESCRIPTION OF CHEMICAL

1. Description

Common Name : Orzyalin
Chemical Name : 3,5-dinitro-N^4,N^4-dipropylsulfanilamide
Empirical Formula : $C_{12}H_{18}N_4O_6S$
Trade Names : Ryzelan, SURFLAN, EL-119
Chemical Abstracts Service (CAS) No. : 19044-88-3
OPP (Shaughnessy) No.: 104201

2. Use Profile

Type of Pesticide : Preemergence Herbicide
Pest Controlled : Annual Grasses; Broadleaf Weeds
Registered Uses : Croplands; Noncroplands; Forestry
Predominant Use : Soybeans (86.1 percent)
Method of Application: Broadcast; Banded Around; Aerial; Irrigation Systems
Mode of Activity : Inhibition of root and shoot growth of germinating weed seedlings

Formulations -
  Technical : 95 percent active ingredient
  End Use : Emulsifiable Concentrate; Wettable Powder; Flowable Liquid

3. History. Oryzalin was patented by Eli Lilly Company (U.S. Patent No. 3,367,949) in 1969 and was first registered for use in 1974. Technical oryzalin is being produced in the United States by Elanco Products Company of Indianapolis, Indiana, and at the present time, Elanco is the sole registrant of products containing oryzalin.

B. SUMMARY OF ASSESSMENT

The Agency has reviewed all data submitted to support the registration of oryzalin. Based on the review of these data, the Agency has reached the following conclusions. See Section C of this Part for a discussion of this review.

1. Oryzalin poses a limited oncogenic risk from dietary exposure. In accordance with the EPA Proposed Guidelines for Carcinogen Risk Assessment (November 23, 1984, 49 FR 46294), oryzalin has been classified as a Group C carcinogen (Possible Human Carcinogen).

2. Applicator risk can be reduced to acceptable limits through the use of protective clothing and gloves.

3. Oryzalin has significant benefits that are not outweighed by the identified risks.

As a result of this review, the Agency has identified missing data to evaluate the environmental and human risks associated with the use of oryzalin. These data must be developed in order to maintain registrations of products or register new products containing oryzalin. The table in this section summarizes the data gaps, in addition to product chemistry information. Please note that this is only a summary and more details can be obtained by referring to Table A, Section D of Part II.

The Agency has also determined that label revisions must be made in the following areas:

- o Grazing Restrictions
- o Use Patterns
- o Environmental Hazards
- o Protective Clothing
- o Chemigation Instructions
- o Posting Requirement

Section D contains a discussion of the Agency's review which resulted in these determinations and Section C of Part II contains the required wording for the labeling revisions.

SUMMARY OF DATA GAPS - ORYZALIN

(Refer to Table A, Section D, Part II,
for details regarding specific requirements)

Residue Chemistry: Nature of Residue (Metabolism)

Toxicology: Chronic Toxicity (Non-rodent)*
Mutagenicity Testing

Environmental Fate: Degradation Studies
Metabolism Studies
Mobility Studies
Dissipation Studies
Accumulation Studies

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* Chronic toxicity study design must include evaluation of thyroid gland chemistry and pathology to more fully assess thyroid function. (Chronic toxicity study submitted 12/86.)

C. AGENCY ASSESSMENT

The Agency has conducted a thorough review of the scientific data base for oryzalin. The conclusions and requirements to be imposed as a result of this review are summarized in the preceding section. The following is a discussion of the results of the review.

1. Tolerance Reassessment. Tolerances have been established for residues of oryzalin on a wide range of raw agricultural products listed in 40 CFR 180.304. The toxicity data considered in support of these tolerances include:

   a. A two-year mouse feeding study with a no-observed-effect level (NOEL) of 500 ppm (75 mg/kg/day) and no oncogenic effects observed up to 3650 ppm (547.5 mg/kg/day);

   b. A two-year rat chronic feeding study with a NOEL of 300 ppm: positive oncogenic effects were noted;

   c. A one year mouse chronic feeding study with a NOEL of 500 ppm;

   d. A three-month rat subchronic feeding study with a NOEL of 1600 ppm (80 mg/kg/day):

   e. A three-month mouse subchronic feeding study with a NOEL of 3650 ppm (547.5 mg/kg/day);

   f. A three-month dog subchronic feeding study with a NOEL of 750 ppm (18.75 mg/kg/day):

   g. A three-generation rat reproduction study with a NOEL of 250 ppm (12.5 mg/kg/ day);

   h. Rat teratology studies with NOELs of 225 mg/kg/day and 2250 ppm; and

   i. Rabbit teratology studies with NOELs of 125 mg/kg/day.

   The Agency has concluded that the three-generation rat reproduction study provides the most conservative estimate for the acceptable daily intake (ADI) for humans. A NOEL of 12.50 mg/kg bw/day and 1000-fold uncertainty factor was used to estimate the provisional ADI (PADI) or reference dose of 0.013 mg/kg/day. An uncertainty factor of 1000 was used to account for the intra- and inter-species difference in extrapolation from the rat to the human, and to account for the fact that the NOEL in the reproduction study is not fully supported by chronic studies. A long-term dog feeding study is identified as a data gap.

The maximum permitted intake (MPI) for a 60 kg human has been calculated to be 0.78 mg/day. To date the tolerances granted have accounted for 1.7% of the acceptable daily intake (ADI) with a theoretical maximum residue contribution (TMRC) to the daily diet of 0.0132 mg/day (for an average 1.5 kg daily diet).

Because the Agency considers oryzalin to be a rat oncogen, all existing tolerances and any proposed tolerance(s) have been or will be, by necessity, considered on that basis. However, the potential impact of each new use on the PADI is also essential and provides an additional check on estimating the safety or hazard of each request. Because the PADI is currently a value which is based on non-oncogenic effects, the long-term dog study is considered an important data gap in the toxicology profile of oryzalin.

No tolerances have been established for residues of oryzalin in meat, milk, eggs, or poultry because the parent compound was thought to be the only residue of concern, and it was not present at detectable levels in feed. The Agency has requested additional metabolism studies in ruminants, chickens and plants in order to more fully define the terminal residue and identify if there are any metabolites which may be of concern.

Tolerances for meat, milk, eggs, and poultry may be necessary if it is determined that residues are found in animal feed. At present, available toxicity data support the existing crop tolerances as they have been established at or near the limit of detection. The Agency is requiring the submission of residue studies in crops, plants and animals to verify that this is the case.

Pending receipt of the additional studies requested, the Agency will evaluate new uses and new tolerances on a case-by-case basis and, if the incremental risks are not signficantly increased, will continue to establish new tolerances. However, food additive tolerances under section 409 of the Federal Food, Drug and Cosmetic Act will not be established.

2. Preliminary Risk and Benefit Analysis

a. Risks. To assess the risks associated with oryzalin, the Agency reviewed the existing data base. This included the review of studies conducted for oncogenicity, mutagenicity, teratogenicity and metabolism. Based on these studies, dietary risk and applicator exposure and risk have been calculated. The following is a discussion of the results of the risk assessment.

(1) Oncogenicity Studies

Rat Study. Results in the Fischer 344 rat study showed that oryzalin, when administered in the diet, was associated with significantly elevated incidences of:

(a) Thyroid gland follicular cell adenomas and carcinomas (combined) in high dose males and females (primarily adenomas):

(b) Three different groups of skin tumors--fibromas and fibrosarcomas (combined) in mid- and high-dose males: due primarily to an increase in fibromas): papillomas, keratoacanthomas and squamous cell carcinomas (combined: due primarily to an increase in papillomas and keratoacanthomas) in high-dose males and females: and basal cell adenomas and skin adnexal tumors (combined) in mid- and high-dose males and females: and

(c) Mammary gland adenomas, fibroadenomas and adenocarcinomas (combined) in low-, mid-, and high-dose females (primarily fibroadenomas). In addition, a significant positive trend for liver adenomas was observed but the elevated incidence of this tumor type in high-dose males was only of borderline statistical significance.

Most of the tumors (except for liver adenomas) occurred at incidences higher than historical control incidences for the same respective tumor type in F344 rats. (Recent NTP data: See Handbook of Carcinogen Testing, H. A. Milman and E. K. Weisberger, eds. pg. 282-325, In Press; Toxicol. Pathol. 12:126, 1984).

The elevated incidence of thyroid tumors observed in high dose male and female rats was accompanied by focal follicular hyperplasia of the thyroid gland in males (control, 2/59; low dose 2/59; mid-dose, 4/57; high dose, 15/56) and females (control, 0/55; low dose, 1/59; mid dose, 5/57; high dose, 14/55). These responses are typical of compounds producing an anti-thyroid response.

In the chronic rat bioassay, the following were observed at the three test levels:

(a) The highest dose tested (2700 ppm in the diet) appeared to exceed a "maximum tolerated dose" (MTD) level. The Agency noted that some of the tumors that occurred in rats at the 2700 ppm dose which exceeded the MTD (i.e., tumors of the thyroid gland, skin, and mammary gland) also occurred at doses that did not exceed the MTD level (i.e., skin and mammary gland tumors at 900 ppm, and mammary gland tumors at 300 ppm). The effects seen at this dose included:

  - Reduced survival ($p < 0.05$) in males and females;
  - Weight loss ($p < 0.05$) in males and females at the end of the studies;
  - Depressed red blood cell, hemoglobin and hematocrit levels in males and females;
  - Increased SGPT and BUN levels in females and increased creatinine levels in females; and
  - Elevated organ weights (liver, kidney, thyroid gland, and heart) in males and females.

(b) The mid-dose level (900 ppm) in rats did not exceed the MTD. The only effects seen at this dose were depressed red blood cell, hemoglobin and hematocrit levels in females, and elevated organ weights in males (liver and kidney) and females (kidney).

(c) The lowest dose tested (300 ppm) resulted in no observed adverse effects.

There is presumptive evidence that the thyroid gland tumors produced by oryzalin in male and female rats were due to an anti-thyroid effect of the compound. Although no biochemical tests were performed to evaluate an effect of oryzalin on thyroid function in the data available for review, several morphological changes were observed in the thyroid gland in the chronic rat bioassays in addition to the tumors. These included:

(a) Increased thyroid gland weights in high-dose (2700 ppm) males.

(b) A dose-related increase in cystic follicles of the thyroid in males (controls, 3/59; low-dose, 5/59; mid-dose, 12/57; high-dose, 19/56) and females (controls, 2/55; low-dose,8/59; mid-dose, 13/57; high-dose, 15/55); and

(c) Focal follicular hyperplasia particularly at the high-dose level, in males and females.

Mouse Study. Oryzalin was not oncogenic when administered in the diet to B6C3F1 mice.

In the chronic mouse bioassays, the highest dose tested in males (3650 ppm in the diet) did not exceed a MTD. The only effect seen at this dose in males was a reduction in body weight gain (approximately -5%) at the end of the study. In female mice, the 3650 ppm dose did appear to exceed a MTD. This dose in females did not affect mortality but did produce reductions in body weight gain at 12 months (-12%), 18 months (-15%), and 24 months (-19%) after the start of the studies. In addition, reductions in blood glucose levels and uterus weights were also noted.

Other Data. Information is available to suggest a structural relationship between oryzalin and other substances that have been demonstrated to be oncogenic in rodents. Oryzalin is a para-substituted aniline derivative and also a sulfonamide compound. The Agency considered data indicating that dietary administration of another para-substituted aniline derivative, 2,4-diaminoanisole, to rats increased the incidences of malignant tumors of the thyroid gland and the skin in both sexes. (NCI Technical Report No. 84, 1978). In addition, data on two sulfonamides, sulfamethoxazole and sulphisoxazole, were considered. Orally administered sulfamethoxazole produced thyroid gland hyperplasia and neoplasia (nodules and adenomas) in rats (IARC 24:285, 1980) whereas sulphisoxazole was negative for oncogenicity in rats and mice (IARC 24:275, 1980). Both of these studies appeared to be adequately performed.

Furthermore, anti-thyroid effects have previously been reported for para-substituted aniline derivatives (of which the sulfonamides make up the greatest number) in rats, mice, and dogs (Endocrinology 32:185, 1943; Goodman and Gilman, 2nd ed., pg. 1301, 1970) and even in humans (Br. Med. J. 281:646, 1980; Goodman and Gilman, 5th ed., pg. 1411, 1975). On the basis of this information the Agency considered that oryzalin might act to cause thyroid tumors by inhibiting the formation of thyroxin, resulting in positive feedback stimulation of the pituitary gland to release thyroid stimulating hormone (TSH), thereby causing thyroid gland hypertrophy (goiter) and the ensuing hyperplasia and tumor formation. Along this line, the study design for the chronic (1-year) toxicity study in dogs being required to fulfill EPA's requirements must include evaluation of thyroid gland chemistry and pathology to more fully assess thyroid function. The studies appeared to be adequately performed.

(2) Mutagenic Studies. No mutagenic effect of oryzalin was detected in several tests to assess gene mutations and chromosomal aberrations. The compound did exert a positive mutagenic effect in one test (sister chromatid exchange in Chinese hamster bone marrow cells) to assess primary DNA damage/repair, but only when the intraperitoneal route of administration was employed; no positive effect was observed when the oral route of administration was employed. The compound was also not mutagenic in another *in vitro* test for primary DNA damage/repair. The Agency is requiring that an *in vitro* cell transformation test be performed by the registrant using oryzalin (other compounds demonstrated to evoke thyroid gland tumors are positive in this test).

(3) Teratology and Reproduction Studies. Five studies were considered, as follows:

(a) In a teratology study in rats, oryzalin was not terotogenic at the highest dose level tested (2250 ppm in the diet).

(b) In a second teratology study in rats, oryzalin was not teratogenic, embryo/fetotoxic or maternally toxic at the highest dose level tested (225 mg/kg/day via gavage).

(c) In a teratology study in rabbits, oryzalin was maternally toxic (reduced food intake and weight loss) and embryo/fetotoxic (reduced mean litter sizes and increased mean resorption rates) at doses of 55 and 125 mg/kg/day by gavage (highest dose tested), but no teratogenic effects were observed at 125 mg/kg/day.

(d) In a repeat rabbit teratology study (oral doses of 10, 25, 55, and 125 mg/kg/day), no embryo/fetotoxic, maternal toxic, or teratogenic effects were observed.

(e) In a three-generation study in rats, administration of oryzalin in the diet did not influence reproductive performance at the highest dose tested, 112.5 mg/kg/day (2250 ppm). Fetotoxic effects (depressed growth) were observed at 37.5 mg/kg/day (750 ppm). The fetotoxic NOEL is set at the lowest dose tested, 12.5 mg/kg/day (250 ppm).

(4) Metabolism Studies. Limited metabolism data are available from studies in rats, rabbits, and monkeys.

(a) In two studies in rats, orally administered radioactive (C^{14}) oryzalin resulted in peak plasma levels of C^{14} of 20 to 30 ug/ml which remained in this range for 24 hours. About 80 to 97 percent was eliminated over 3 days, about half of which was in urine and half in feces.

(b) In a single study in rabbits, orally administered C^{14}-labeled oryzalin was excreted primarily in the urine (67 percent within 24 hours).

(c) In a percutaneous absorption study in monkeys, similar doses of radioactive oryzalin were administered dermally (8.6 uCi) and i.v. (9 uCi) to determine the rate and extent of dermal absorption.

- With the i.v. route of administration, radioactivity disappeared rapidly from blood (T 1/2 = 1.6 hours) and 74 percent was excreted in 96 hours (35 percent in feces and 23 percent in urine in 24 hours).

- With the dermal route of administration, levels of radioactivity in blood remained constant from 4 to 96 hours, and 9.7 percent was excreted in 96 hours (4.6 percent in feces and 5.1 percent in urine in 96 hours). Approximately 13 percent of the dermally applied radioactivity was absorbed.

(d) No metabolites of oryzalin were determined in the *in vivo* studies. Eight metabolites have been identified in *in vitro* studies. No toxicity information was available for any of these metabolites, which are as follows:

Oryzalin - 3,5-Dinitro-N_4, N_4-dipropylsulfanilamide

Metabolite #1 - 3,5-Dinitro-N_4-propylsulfanilamide

Metabolite #2 - 3-Amino-5-nitro-4-propylaminobenzenesulfonamide

Metabolite #3 - 3,5-Dinitrosulfanilamide

Metabolite #4 - 3,4-Diamino-5-nitrobenzenesulfonamide

Metabolite #5 - 3-Amino-4-dipropylamino-5-nitrobenzenesulfonamide

Metabolite #6 - 3,5-Diamino-4-dipropylaminobenzenesulfonamide

Metabolite #7 - 2-Ethyl-4-nitro-C-benzimadazolesulfonamide

Metabolite #8 - 3,5-Dinitro-N_4-propanolyl-N_4-propylsulfanilamide

(5) *Risk Assessment*. The Agency has reviewed oncogenicity studies for oryzalin, and concludes that these data provide limited evidence of oncogenicity for the chemical in male and female rats. According to EPA Guidelines for Carcinogen Risk Assessment (September 26, 1986, 51 FR 33992), oryzalin has been classified as a Group C oncogen, that is, a possible human oncogen.

Oryzalin caused benign tumors at multiple organ sites in both sexes of the rat, and is structurally similar to other sulfonamides causing similar types of tumors. It did not produce tumors in multiple species or strains, nor did it produce tumors in multiple experiments. Oryzalin did not produce tumors to an unusual degree with regard to incidence, tumor site or type, or age of animal at onset. In addition, short-term tests for mutagenicity, as well as teratogenicity assays, were negative.

Because these data do not provide sufficient evidence of carcinogenicity as determined through application of the criteria set forth in the Guidelines, oryzalin is not classified as a Group B2 carcinogen (Probable Human Carcinogen). Although SAR information demonstrated positive tumorigenic responses in the thyroid with other para-substituted aniline derivatives, these were considered to be due primarily to a demonstrated anti-thyroid effect, particularly in the absence of any positive data from other short-term tests.

However, there is limited evidence of carcinogenicity, and in accordance with the Guidelines, the Agency has classified oryzalin as a Group C carcinogen.

The FIFRA Scientific Advisory Panel (SAP) reviewed the data base supporting the EPA's decision to classify oryzalin as a Group C carcinogen. The SAP concluded that the carcinogenic data are compatible with the Group C classification.

(6) Dietary Risk. The oncogenic evidence is discussed above. The dietary risk associated with oryzalin is 10^{-5}-10^{-6} (Group C carcinogen) using a TMRC of 0.0132 mg/day and a Q^* of 3×10^{-2} $(mg/kg/day)^{-1}$. Dietary exposure to oryzalin was calculated based on assumptions that 100% of crops are treated, and that exposed individuals consume only crops containing residues at the tolerance level. In addition, established tolerances have been based on no detectable residue levels or levels at the sensitivity of the analytical method (0.01 ppm).

Dietary exposure to oryzalin *per se* appears to be minimal, and EPA expects that, because of the assumptions made, actual exposure is less than the calculated exposure. Additional uses of oryzalin will be considered on a case-by-case basis giving particular concern for detectable levels of oryzalin per se, which may be present, as well as clarification of the terminal residue in terms of measurable metabolites.

(7) Applicator Exposure and Risk. The toxicology data strongly indicate no toxic effects associated with dermal contact and inhalation exposure to oryzalin. However, the Agency is concerned about applicator exposure and risk because of the

oncogenic response in the rat study. Exposure, as discussed below, has been estimated using the toxicology data which indicate:

(a) Acute toxicity by the dermal route is low (>2 g/kg). Oryzalin is not a dermal sensitizer; 2 separate subchronic dermal studies using Surflan 75W and Surflan 4AS demonstrated no adverse effects to rabbits when applied to intact or abraded skin at concentrations of 4.8% for 6 hrs. per day.

(b) Dermal absorption is poor. A percutaneous absorption study using monkeys demonstrated a dermal absorption rate of @ 1.6% of the applied dose. Moreover, the rate of excretion is high compared to the rate of absorption.

(c) Compound-related effects associated with worker or applicator situations have not been identified in the epidemiology data.

Evaluation of mixer/loader/applicator exposure via the dermal and inhalation routes have been estimated using surrogate data for ground application of oryzalin in almond orchards at 4 lbs. a.i./acre and for both private and commercial applicators to soybeans at 1 lb. a.i./acre. For almond orchards and private soybean applicators, oryzalin is assumed to be used one day a year. Commercial soybean applicators are assumed to apply oryzalin 15 days a year. Applicators were assumed to weigh 70 kg and to work 35 years out of a 70-year lifetime.

For use in almond orchards by workers in normal work clothes, excluding gloves, dermal exposure is 7 mg/year (incorporating the dermal absorption factor of 1.6%) and inhalation exposure is 1 mg/year. This gives a lifetime average daily dose (LADD) of $2x10^{-4}$ mg/kg day. For private soybean applicators, clothed as above, corrected dermal absorption is 5 mg/year and inhalation exposure is 1 mg/year with an LADD of $1x10^{-4}$ mg/kg/day.

For commercial applicators, clothed as above, the corrected dermal absorption is 106 mg/year and the inhalation exposure is 21 mg/year with an LADD of $2x10^{-3}$ mg/kg/day.

Using $Q^* = 3x10^{-2}$ $(mg/kg/day)^{-1}$ (Group C carcinogen), the upper 95% confidence limits on risks are

almonds = $10^{-5} - 10^{-6}$
soybeans (private) = $10^{-5} - 10^{-6}$
soybeans (commercial) = $10^{-4} - 10^{-5}$

It is estimated that exposure to mixers/loaders/applicators could be reduced by as much as 90% by use of impermeable gloves and other protective clothing. Using these protective measures, the upper 95% confidence limits on risks as a Group C carcinogen are:

almonds = $10^{-6} - 10^{-7}$
soybeans (private) = $10^{-6} - 10^{-7}$
soybeans (commercial) = $10^{-5} - 10^{-6}$

b. Benefits. An assessment of the benefits of oryzalin was made based on the use patterns of the chemical and the alternatives available. The following is a result of that assessment.

Oryzalin controls a wide spectrum of annual grasses and broadleaf weeds (46 different weeds) in 32 fruits, nuts, vineyards, forestry, noncrop areas, and certain agricultural crops.

Oryzalin, unlike other dinitroaniline herbicides, can be applied preemergence and can remain on the soil surface for as long as 3 weeks before rainfall moves it into the weeds germinating zones, whereas other herbicides require rainfall within 7-10 days for activation or need to be soil incorporated.

Oryzalin fits well into a no-till weed control situation in soybeans, because it affords the grower flexible timing and can be applied either in the fall, early spring or over-the-top which reduces the need for "burndown" herbicides. It can also be applied aerially, by ground equipment, with liquid fertilizers, over-the-top in tank mixes, or through chemigation systems. Oryzalin is also widely tank mixed with various herbicides in several crops to provide a wider weed control spectrum and provides a low risk of carryover or subsequent damage to the next crop.

Oryzalin is the only preemergence herbicide that can be applied over-the-top of standing wheat or barley to control spring germinating annual weeds. This use helps make relay intercropping (planting soybeans in standing wheat or barley before harvest) a more viable cropping option.

In fruit, nut and vineyard crops, oryzalin gives the growers the flexibility they need to control weeds from 2-12 months without phytotoxicity depending upon the application rate selected. In ornamentals, the growers can also vary their length of weed control from 2-8 months depending upon the application rate selected.

D. REGULATORY POSITION AND RATIONALE

Based on review and evaluation of all available data and other relevant information on oryzalin, the Agency has made the following determinations:

1. If any of the risk criteria listed in Section 154.7 of Title 40 of the U.S. Code of Federal Regulations have been met or exceeded, a special review of the chemical is conducted. Although oryzalin has met one of the criteria, that of an oncogen in the rat, with potential for oncogencity in humans, it is not being placed into the special review process at this time.

   Rationale: After considering both dietary and applicator exposure to oryzalin, the Agency has concluded that the risks posed by oryzalin are minimal and hence initiation of a special review is not necessary at this time.

2. Registrants must place protective clothing statements on the labels of manufacturing-use and end-use products containing oryzalin. The specific language of these statements is provided in Part II.

   Rationale: Because of potential oncogenic risk from oryzalin, the Agency is requiring protective clothing statements on labels for oryzalin products. Applicator exposure and risks are discussed beginning on page 13. These risks can be reduced to an acceptable level by requiring persons who may come in contact with the chemical to wear protective clothing.

3. The Agency has concluded that no change in present tolerances is indicated at this time. New tolerances will be evaluated on a case-by-case basis and new tolerances established if the incremental risks are not significantly increased. The Agency will require additional residue and metabolism studies on soybeans, potatoes, ruminants and chickens, in order to determine the nature of the residue in plants and animals.

   Rationale: Current tolerances are expressed in terms of parent compound only; however, the Agency has determined that the metabolism in plants and animals is not adequately defined. Most tolerances for oryzalin have been established at or near the limit of detection of the analytical method. Available information indicates a need to further clarify the composition of the terminal residue of oryzalin in plants and animals.

4. The Agency will assess the potential for contamination of groundwater by oryzalin after the environmental fate data required by this Standard are received.

   Rationale: The Agency has no acceptable data on which to base an evaluation of oryzalin's potential for groundwater contamination. This assessment will be done after environmental fate data, as identified in Table A, are received.

5. The Agency is not requiring a reentry interval for currently registered uses of oryzalin.

   Rationale: The acute toxicity for oryzalin is low (Category III). Additionally, exposure and the resultant risks to field workers are expected to be much lower than to applicators handling the chemical. Therefore, no reentry interval is required.

6. The Agency is requiring grazing restrictions for the labels of all end-use products.

   Rationale: There are currently no tolerances established for residues of oryzalin in animals or animal byproducts.

7. The Agency is imposing label requirements for end-use products intended for use with center pivot irrigation systems (chemigation). See Section C of Part II for the specific language.

   Rationale: Because of the oncogenic risk associated with the exposure of oryzalin, the Agency is requiring that labels of end-use products contain precautionary statements to reduce the chance of incidental exposure to field workers.

8. While the data gaps are being filled, currently registered manufacturing-use products (MPs) and end-use products (EPs) containing oryzalin as the sole active ingredient may be sold, distributed, formulated and used in the United States, subject to the terms and conditions specified in this Standard. Registrants must provide or agree to develop additional data, as specified in Table A of Section D, Part II, in order to maintain existing registrations.

   The Agency will issue registrations for substantially similar products. Substantially similar products are those that, when compared to a currently registered product: (1) contains the same active ingredient(s); (2) contains percentages of the active ingredient(s) and the intentionally added inerts and their percentages, or the impurities and their percentages, which vary only to the extent that it can be reasonably established that the hazards are not different from those associated with the registered product; and (3) bears identical or substantially similar uses.

New uses will be evaluated on a case-by-case basis. These evaluations will consider the effects on the theoretical maximum residue concentration (TMRC) and the maximum permitted intake (MPI), and the oncogenic risks, and new uses will be approved only if incremental risks are not significantly increased.

Rationale: Section 6 of FIFRA authorizes the Administrator to cancel a pesticide registration if he determines that the pesticide will cause unreasonable adverse effects on the environment. Based on available data, the Administrator has not made such a determination as to oryzalin. The Administrator has authority under FIFRA sections 3(c)(2)(B) and (3)(c)(7) to require registrants and applicants for registration to provide data needed to support new or continuing registrations.

Issuance of this Standard provides a mechanism for identifying data needs. These data will be reviewed and evaluated and the Agency will determine if the data will affect the registration of oryzalin.

PART II. REQUIREMENTS FOR REGISTRATION

This Part of the Registration Standard discusses what data and information are required to maintain existing registrations or register new products containing oryzalin. It also contains the instructions for submitting the necessary data and information to the Agency.

A. CRITERIA FOR REGISTRATION UNDER THIS STANDARD

To be covered by this Standard, MPs must contain oryzalin as the sole active ingredient, bear required labeling and conform to the product composition, acute toxicity limits and use pattern requirements listed in Section B.

The applicant for registration or reregistration of products subject to this Standard must comply with all terms and conditions described in it. This includes making a commitment to fill data gaps on a schedule specified by the Agency. Applicants for registration under this Standard must follow the instructions contained herein and complete and submit the appropriate forms within the time specified.

B. ACCEPTABLE RANGES AND LIMITS

1. Product Composition Standard. Technical grade products must contain at least 95.0 percent oryzalin as the sole active ingredient. Each MP formulation proposed for registration must be fully described with appropriate certification of limits. In addition, the active ingredient must be substantially similar to that in currently registered technical products. Any MPs not meeting these requirements will be considered a new product and will not be registered under this Standard.

2. Acute Toxicity Limits. The Agency will consider registration of technical grade MPs containing oryzalin when the appropriate acute toxicity categories are no higher than Category III. The labeling of any registered products must bear the appropriate precautionary statements.

3. Use Patterns. To be registered under this Standard, MPs containing oryzalin must be labeled for formulation into end-use products that are to be used for control of germinating annual grasses and broadleaf weeds in fruit, nuts, vineyards (nonbearing and bearing), soybeans, cotton (Texas only), peas (English or green), tobacco (air- and flue-cured), potatoes (white), small grains (wheat and barley), forestry and Christmas tree plantations, established ornamentals and noncropland (rights-of-way) areas. Appendix A, EPA Index to Pesticide Chemicals - Oryzalin, lists all registered uses, as well as approved maximum application rates and frequencies of application.

C. REQUIRED LABELING

The required label statements must appear on the labels of all products in channels of trade within two years of issuance of this Standard. After review of data to be submitted under this Standard, the Agency may impose additional label requirements.

1. All Products. All products must bear appropriate labeling as specified in 40 CFR 162.10. Specific information regarding label requirements is included in Appendix B.

   Oryzalin is not designated as an acute or toxic hazardous waste under the Resource Conservation and Recovery Act (RCRA). The label must bear the following pesticide disposal statement:

   > "Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility"

   The labels of all products must bear the appropriate container disposal statement (see Appendix C).

2. Manufacturing Use Products. Labels of all MPs must bear the statements:

   > "For formulation into end-use herbicide products intended only for use on fruit, nuts, vineyards (bearing and nonbearing), soybeans, cotton (Texas only), peas (English and green), Tobacco (air- and flue-cured), potatoes (white), small grains (wheat and barley), forestry and Christmas tree plantations, established ornamentals and noncropland areas."

   > "Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA."

   > "Protective clothing (coveralls, a long-sleeved shirt, shoes and impermeable gloves) must be worn when handling this chemical."

3. End-Use Products

a. Labels of all formulated end-use products (EPs) must bear the following statements:

> "Do not graze or feed forage from treated fields or orchards to livestock."
>
> "Mixer/loader/applicators must wear protective clothing, consisting of coveralls, a long-sleeved shirt, shoes, and impermeable gloves when handling this product."

b. The labels of non-granular EPs intended for outdoor use must bear the following statement:

> "Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes."

c. The labels of all EPs applied by center pivot irrigation systems must bear the following posting requirements statement and the appropriate chemigation instructions.

Posting Requirements

> "Posting Requirements: Areas being treated with pesticides applied through irrigation systems must be posted at the usual entrances to the area, at bulletin boards where workers assemble and where the treated area lies adjacent to roads, residential areas, or any other areas such as schools, parks, or other public facilities. Posted signs must be legible from 25 feet away and be printed in English and any other appropriate language such as Spanish. Signs must be posted prior to application, but may remain in place indefinitely. The sign must indicate the following:
>
> NOTICE
>
> Pesticides are applied in irrigation water in this field. Do not enter this field when the irrigation system is operating. Do not drink, bathe in or play in water or in furrows, puddles, ponds, canals or ditches associated with this irrigation system."

Chemigation Instructions

(1) Apply only through properly maintained irrigation systems having continuously moving laterals and providing uniform distribution of water. Where a system does not provide uniform water distribution such as at the extreme ends of the lateral, around supports, where treated discharge water is released from water-powered motors, or where extreme changes in elevation occur, unacceptable weed control or crop injury may occur.

(2) Apply the product only through irrigation systems containing anti-siphon and check valves, to prevent water source contamination and overflow and siphoning of slurry tank, and interlocking controls between the metering device and the water pump, to insure simultaneous shut-off.

(3) Inject the product with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing.

(4) Application of more than label recommended quantities of irrigation water per acre may result in decreased product performance by removing the pesticide from the zone of effectiveness.

(5) Do not apply when wind speed favors drift, when connections or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product should be dismantled and drained. Use of low trajectory angle sprinkler or drop nozzles will decrease the likelihood of drift.

(6) Greater accuracy in pesticide calibration and distribution will be achieved by injecting a larger volume of more dilute slurry per hour.

(7) Constant agitation should be maintained in the slurry tank during the entire period of pesticide application.

d. The labels of all products with outdoor agricultural uses and which are applied to crops utilizing hand labor tasks must bear general precautionary language about farmworker safety. See Appendix D for the required language.

D. SUBMISSION OF GENERIC DATA

Generic data pertain to the properties or effects of a particular ingredient, and thus are relevant to an evaluation of the risks of all products containing that ingredient, regardless of the product's unique composition or specific use. EPA has the authority under FIFRA sec. 3(c)(2)(B) to require registrants to submit data that will answer the Agency's questions regarding the hazard that may result from the intended use of a pesticide.

Although sec. 3(c)(2)(B) provides that all registrants are responsible for these data, the Agency generally imposes generic data requirements only on the registrants of the manufacturing-use products (basic suppliers of the active ingredient) and other producers who do not qualify for the formulator's exemption. The formulator's exemption applies to a registrant of a product if the source of its active ingredient(s): (1) is a registered product, and (2) is purchased from a source which does not have ownership in common with the registrant's firm.

A producer who currently does not qualify for the formulator's exemption may qualify by changing its source of supply to a registered source, provided the source does not share ownership in common with the registrant's firm. A registrant may do so by submitting a new Confidential Statement of Formula, EPA Form 8570-4, identifying the registered source of the active ingredient, to the Product Manager listed in Section E of this Part within 90 days of receipt of the Registration Standard. The chart on the following page shows what is generally required of those who do and do not qualify for the formulator's exemption in the Registration Standards program.

Registrants are reminded that FIFRA sec. 6(a)(2) requires that factual information raising concerns of possible unreasonable adverse effects of a pesticide must be promptly submitted. If interim results of studies in progress show possible adverse effects, the Agency is to be notified of those interim results. This portion of the Registration Standard is issued under the authority of FIFRA sec. 3(c)(2)(B). Table A, following this section, lists the data required for maintaining the registration of each product.

EPA has determined that additional generic data described in Table A must be submitted to EPA for evaluation in order to maintain in effect the product registration(s). As required by FIFRA sec. 3(c)(2)(B), registrants are required to take appropriate steps to comply with this Standard.

PRODUCTS SUBJECT TO THE REGISTRATION STANDARD	ACTION(S) REQUIRED TO MAINTAIN REGISTRATION
I. Products That Do Not Qualify For The Formulator's Exemption	
A. Single Active Ingredient Products*	These products must be reregistered. To obtain reregistration, labeling, packaging and data requirements must be satisfied in accordance with the Registration Standard.
B. Multiple Active Ingredient Products	These products will not be reregistered at this time. However, generic data required to continue the registration of the active ingredient under review, as described in the Registration Standard, will be required and some labeling precautions may also be required.
II. Products That Do Qualify For The Formulator's Exemption	Only when additional restrictions or labeling are needed to protect humans or the environment will these products be subject to the Registration Standard requirements. Affected products will be dealt with in a variety of ways, including but not limited to the Label Improvement Program and special intent to cancel notices.

* End-use products of registrants who also produce a manufacturing use product will not be required to be reregistered provided that registrant fulfills the requirements specified in the Registration Standard for manufacturing-use product(s). Such end-use products will be subject to the labeling changes required for products in "II" above. If there are no manufacturing-use products registered by any company, end-use products will be required to be reregistered.

NOTE: If all registrants in "I" above fail to meet the requirements in I-A and B above, the registrants in "II" lose their right to qualify for the formulator's exemption and become subject to the requirements in I-A and B.

EPA may suspend the registration of products unless, within the specified time, the registrant informs EPA how it will satisfy the requirements of this Standard. Any such suspension will remain in effect until the registrant has complied with the terms of this Standard.

1. What Generic Data Must be Submitted. Registrants may determine which generic data must be submitted by consulting Table A. That table lists the generic data needed to evaluate the continued registrability of all products, and the dates by which the data must be submitted. The required studies must be conducted in accordance with EPA approved protocols (such as those contained in the Pesticide Assessment Guidelines[1]) or data collected under the approved protocols of the Organization for Economic Cooperation and Development (OECD). If registrants do not wish to develop data in support of certain uses appearing in their labeling, they may delete those uses at the time they submit revised labeling.

   For certain kinds of testing (generally ecological effects), EPA requires the test substance to be a "typical formulation," and in those cases EPA needs data of that type for each major formulation category (e.g., emulsifiable concentrates, wettable powders, granulars, etc.) These are classified as generic data and when needed are specified in Table A. EPA may possess data on certain "typical formulations" but not others.

2. Options Available for Complying With Requirements to Submit Data. Within 90 days of receipt of this Standard, registrants must submit to EPA a completed copy of the form entitled "FIFRA Section 3(c)(2)(B) Summary Sheet," EPA Form 8580-1 (Appendix E), for each of their products. On that form, registrants must state which of the following methods they will use to comply with the requirements of this Standard:

   a. Notify EPA that they will submit the data, and either submit the existing data they believe will satisfy the requirement, or state that they will generate the data by conducting testing. If the test procedures they will use deviate from (or are not specified in) the Pesticide Assessment Guidelines or protocols contained in the Reports of Expert Groups to the Chemicals Group, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, they must enclose the protocols they will use.

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[1] The Pesticide Assessment Guidelines are available in hard copy or microfiche from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

OR

b. Notify EPA that they have entered into an agreement with one or more other registrants to jointly develop (or share in the cost of developing) the data. If they elect this option, they must notify EPA which registrant(s) are parties to the agreement.

OR

c. File with EPA a completed "Certification of Attempt to Enter Into an Agreement With Other Registrants for Development of Data," EPA Form 8580-6 (Appendix F)[1].

OR

d. Request that EPA amend their registrations by deleting the uses for which the data are needed. (This option is not available to applicants for new products.)

OR

e. Request voluntary cancellation of the registration(s) of the products for which the data are needed. (This option is not available to applicants for new products.)

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[1] FIFRA sec. 3(c)(2)(B) authorizes joint development of data by two or more registrants, and provides a mechanism by which parties can obtain an arbitrator's decision if they agree to jointly develop data but fail to agree on all the terms of the agreement. The statute does not compel any registrant to agree to develop data jointly. In EPA's opinion, joint data development by all registrants subject to a data requirement or a cost-sharing agreement among all such registrants is clearly in the public interest. Duplication of testing could increase costs, tie up testing facilities, and subject an unnecessarily large number of animals to testing. As noted earlier, EPA has discretion to suspend the registration of a product when a registrant fails to submit data required under FIFRA Section 3(c)(2)(B). EPA has concluded that it should encourage joint testing rather than duplicative testing, and that suspension should be withheld in certain cases to further this goal. Accordingly, if (1) a registrant has informed EPA of its intent to develop and submit data required by this Notice; and (2) a second registrant informs EPA that it has made a bona fide offer to the first registrant to share in the expenses of the testing [on terms to be agreed upon or determined by arbitration under FIFRA Section 3(c)(2) (B)(iii)]; and (3) the first registrant has declined to agree to enter into a cost-sharing agreement, EPA will not suspend the second firm's registration.

3. Procedures for Requesting Changes in Testing Methodology and Extensions of Time. EPA recognizes that registrants may disagree with the Agency's conclusions regarding the appropriate ways to develop the required data or how quickly the data must be submitted. If the test procedures a registrant plans to use deviate from (or are not specified in) the registration guidelines or protocols contained in the reports of the Expert Groups to the Chemical Groups, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, the registrant must submit the protocol for Agency review prior to the initiation of the test.

If a registrant believes it will need more time to generate the required data than is allowed by EPA's schedule, the registrant may submit a request for an extension of time. The extension request must be submitted in writing to the Product Manager. The extension request should state the reasons why the registrant believes that an extension is appropriate. While EPA considers the request, the registrant must strive to meet the deadline for submitting the required data.

Table A - Generic Data Requirements for Oryzalin

Table A contains generic data requirements that apply to the pesticide in all products, including data requirements for which a "typical formulation" is the test substance.

The data requirements are listed in the order in which they appear in 40 CFR 158. The reference numbers accompanying each test refer to the test protocols set out in the Pesticide Assessment Guidelines, which are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. The following abbreviations are used in the table:

Test Substance -

TGAI = Technical Grade of the Active Ingredient
PAI = Pure Active Ingredient
PAIRA= Pure Active Ingredient, Radiolabelled
TEP = Typical End-Use Product
MP = Manufacturing-Use Product
EP = End-Use Product

Use Patterns -

A = Terrestrial, Food Crop
B = Terrestrial, Non-Food
C = Aquatic, Food Crop
D = Aquatic, Non-Food
E = Greenhouse, Food Crop
F = Greenhouse, Non-Food
G = Forestry
H = Domestic Outdoor
I = Indoor

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Guideline Citation and Name of Test	Test Substance	Guidelines Status	Are Data Required		Footnote Number	Data Must Be Submitted Within Time Frames Listed Below
			Yes	No		
§158.120 Product Chemistry						
Product Identity						
61-1 - Product identity and disclosure of ingredients	TGAI	R	☐	☒		
61-2 - Description of beginning materials and manufacturing process	TGAI	R	☒	☐	1	6 months
61-3 - Discussion of formation of impurities	TGAI	R	☐	☒		
Analysis and Certification of Product Ingredients						
62-1 - Preliminary analysis	TGAI	CR	☒	☐	2	12 months
62-2 - Certification of limits	TGAI	R	☒	☐	3	12 months
62-3 - Analytical method for enforcement of limits	TGAI	R	☒	☐	4	12 months
Physical and Chemical Characteristics						
63-2 - Color	TGAI	R	☐	☒		

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Guideline Citation and Name of Test	Test Substance	Guidelines Status	Are Data Required Yes	No	Footnote Number	Data must Be Submitted Within Time Frames Listed Below
§158.120 Product Chemistry (Continued)						
Physical and Chemical Characteristics (Continued)						
63-3 - Physical state	TGAI	R	☐	☒		
63-4 - Odor	TGAI	R	☐	☒		
63-5 - Melting point	TGAI	R	☐	☒		
63-6 - Boiling point	TGAI	R	☐	☒		
63-7 - Specific gravity	TGAI	R	☒	☐	5	6 months
63-8 - Solubility	TGAI or PAI	R	☒	☐	6	6 months
63-9 - Vapor pressure	PAI	R	☐	☒		
63-10 - Dissociation constant	PAI	R	☒	☐	5	6 months
63-11 - Octanol/water partition coefficient	PAI	R	☒	☐	5	6 months
63-12 - pH	TGAI	R	☐	☒		
63-13 - Stability	TGAI	R	☒	☐	5	6 months

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Guideline Citation and Name of Test	Test Substance	Guidelines Status	Are Data Required Yes	Are Data Required No	Footnote Number	Data must Be Submitted Within Time Frames Listed Below
§158.120 Product Chemistry (Continued)						
Other Requirements						
64- 1 - Submittal of samples	TGAI, PAI	CR	☐	☒	7	

1/ The information provided is not completely adequate to satisfy requirements. Additional information as per 61-2 is needed.
2/ Only 4 batches were analyzed, therefore, this constitutes a data gap. As per the guidelines, additional analyses of the technical oryzalin for impurities must determine all impurities occurring at 0.1% or higher.
3/ Certification of minimum or upper limits for impurities must be submitted.
4/ Validation data for analytical methods used to determine impurities must be submitted. Additional methodology and validation data for other impurities may be needed.
5/ Not reported.
6/ The temperature at which solubilities were determined must be reported.
7/ If samples are needed, the Agency will request them.

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirements	Composition	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frames For Data Submission
§158.125 Residue Chemistry				
171-4 - Nature of Residue (Metabolism)				
- Plants	PAIRA, TGAI	Partially	00038884 00038885 00066197 00086050	Yes1/ - 18 months2/
- Livestock	PAIRA, TGAI and Plant Metabolites	Partially	00084885 00084887 00106680	Yes3/ - 18 months
171-4 - Residue Analytical Method	TGAI and Metabolites	Yes	00023990 00033976 00106730	Conditional4/
171-4 - Storage Stability Data	PAI	Yes	00106730	Conditional5/

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirements	Composition	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frames For Data Submission
§158.125 Residue Chemistry (Continued)				
171-4 - Magnitude of the Residue--Residue Studies for Each Food Use				
Crop Group 1 - Root and Tuber Vegetables[6]				
o Crop 1 - Potatoes (White)				
--field trials	TEP	Yes	00105212	Conditional[7]
--processed food/feed	EP	No		Conditional[8]
o Crop 2 - Sweet Potatoes				
--field trials	TEP	Yes	GS0186-011	Conditional[7]
Crop Group 2 - Legume Vegetables[6]				
o Crop 1 - Peas				
--field trials	TEP	Yes	00105707	Conditional[7]

GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirements	Composition	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frames For Data Submission
§158.125 Residue Chemistry (Continued)				
171-4 - Magnitude of the Residue--Residue Studies for Each Food Use (Continued)				
o Crop 2 - Soybeans				
--field trials	TEP	Yes	00017945 00018372 00031767 00038883 00054464 00066194 00089708 00096361 00106657 00106727 00106732 00106735	Conditional[7]
--processed food/feed	EP	No		Conditional[8]
Crop Group 3 - Citrus Fruits (Grapefruit, Lemon, Orange)[9]				
--field trials	TEP	Yes	00031663 00106691 00115638	Conditional[10]

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirements	Composition	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frames For Data Submission
§158.125 Residue Chemistry (Continued)				
171-4 - Magnitude of the Residue--Residue Studies for Each Food Use (Continued)				
Crop Group 4 - Pome Fruits (Apples and Pears)9/				
--field trials	TEP	Partially	00031663 00106691	Yes11/ - 18 months2/
Crop Group 5 - Stone Fruits (Apricots, Nectarines, Peaches, Plums, Prunes)9/				
--field trials	TEP	Yes	00031663 00106691	No10/
Crop Group 6 - Small Fruits and Berries (Blackberries, Blueberries, Dewberries, Boysenberries, Loganberries, Currants, Elderberries, Raspberries, Gooseberries, Grapes)9/				
--field trials	TEP	Partially	00031663 00106691	Yes12/ - 18 months2/
Crop Group 7 - Tree Nuts (Macadamia Nuts, Almonds, English Walnuts, Filberts, Pecans)9/				
--field trials	TEP	Yes	00031663 00106691	No10/

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirements	Composition	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frames For Data Submission
§158.125 Residue Chemistry (Continued)				
171-4 - Magnitude of the Residue--Residue Studies for Each Food Use (Continued)				
Crop Group 8 - Cereal Grains (Barley and Wheat)6/				
--field trials	TEP	Yes	00106738 00126840 00126838 00129004 00126839 00129005	Conditional7/13
--processed food/feed	EP	No		Conditional8/
Crop Group 9 - Non-Grass Animal Feed (Alfalfa)6/				
--field trials	TEP	Partially	00086050 00086051 00086052	Conditional14/
Crop Group 10 - Other Fruits and Nuts (Avocados, Figs, Kiwi Fruit, Olives, Pistachios, Pomegranates)9/				
--field trials	TEP	Yes	00031663 00106691	No10/

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirements	Composition	Does EPA Have Data To Satisfy This Requirement? (Yes, No, or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frames For Data Submission
§158.125 Residue Chemistry (Continued)				
171-4 - Magnitude of the Residue--Residue Studies for Each Food Use (Continued)				
Crop Group 11 - Cotton				
--field trials	TEP	Partially	00106685	Yes[15] - 18 months[2]
--processed food/feed	EP	No	-	Conditional[16]
Crop Group 12 - Peppermint and Spearmint				
--field trials	TEP	Yes	00105213	Conditional[7]
Crop Group 13 - Tobacco				
--field trials	TEP	Partially	00093978	Yes[17] - 18 months[2]
Meat, Milk, Poultry and Eggs	TGAI or Plant Metabolites	No		Yes[18] - 18 months[2]

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§158.125 Residue Chemistry (Continued)

1/ The metabolism of oryzalin is not considered to be adequately understood. Additional metabolism studies will be required for soybeans and potatoes only. If other foliar (over-the-top) uses are proposed, additional metabolism studies will be required.

2/ Time frame for submitting data is 18 months commencing with the first plant season following issuance of Standard. This time frame will begin with the Spring 1987 planting season and data are due no later than October 1988.

3/ Since oryzalin is retained to some extent in tissues of animals as well as milk and eggs, and since additional foliar uses for this chemical are envisioned, additional metabolism studies on a ruminant and chickens are required. These studies should allow the determination of the nature of the residue in animal tissues, milk and eggs.

4/ Should the results of the additional metabolism studies require it, adequate analytical methodology for determination of parent and/or metabolites of concern in crops, by-products, meat, milk, poultry and eggs will be needed.

5/ Any additional tolerances or uses which result in significant levels of oryzalin and/or metabolites of concern may require additional storage stability information. Also, based on the results of the metabolism studies, storage stability data for metabolites of concern may be needed.

6/ A crop group tolerance is not appropriate at this time because residue data is not available for other representative crops of this group and because the metabolism of oryzalin in plants is not adequately understood.

7/ Since additional plant metabolism studies are required, residue data for any other metabolites of concern may be needed.

8/ If additional residue studies indicate the presence of real residues of oryzalin and/or any metabolites of concern in potatoes, a processing study will be required.

9/ A group crop tolerance for residues of oryzalin per se has been established at 0.05 ppm for citrus fruits; pome fruits; stone fruits; small fruits and berries; tree nuts and almond hulls; and other fruits and nuts.

10/ If tolerances for other crops are modified to include metabolites of oryzalin, the tolerance for this crop group will also need to be modified.

11/ Available residue data for pome fruits is not considered adequate to support the established tolerance. Additional residue studies reflecting the maximum proposed use are needed from the major apple and pear growing regions (CA, MI, NY/PA/WV, VA/NC and WA). These data should utilize methodology which determines the total terminal residue of concern. The additional data also must include analysis of dried apple pomace for the terminal residue of concern.

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

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§158.125 Residue Chemistry (Continued)

12/ Residue data for small fruits is not considered adequate to support the established tolerance. Additional residue studies reflecting the maximum proposed use are needed for grapes, blackberries or other "Rubus" spp., blueberries and strawberries from the major growing regions for these crops (for "Rubus" spp. WA and OR; for blueberries MI, NJ, ME, NC and WA/OR; for strawberries, CA, FL, OR/WA, IN/MI, NY/OH and LA; and for grapes, CA, NY, WA, MI and NC). If a use for cranberries is proposed, residue data for cranberries from the major growing regions (WI, MA/NJ and OR/WA) will also be needed. These data should utilize methodology which determines the terminal residue of concern. Additional residue data must include analysis of grape pomace (wet and dried) and raisins for the terminal residue of concern.

13/ If the use of wheat and barley is modified, additional residue data on forage and straw, as well as an appropriate tolerance proposal for these commodities, will be required.

14/ There is no permanent tolerance for residues of oryzalin on alfalfa; temporary tolerances expired on 6/27/84. Additional residue data will be needed before any permanent tolerances can be established. Such data must reflect alfalfa grown in all regions of the U.S. and analysis of alfalfa and hay for any metabolites of concern as determined by the additional plant metabolism studies.

15/ Additional residue data are needed from other major cotton growing areas. These data should reflect the maximum proposed use. Since additional plant metabolism data are required, the additional residue data needed should reflect analysis of the terminal residue of concern.

16/ If the additional residue studies indicate that real residues of oryzalin and/or metabolites occur in cottonseed a processing study will be required.

17/ The use of oryzalin on tobacco does not require a tolerance or an exemption from the requirements of a tolerance, but data are needed to assess the exposure to residues resulting from the use of oryzalin.

18/ Since envisioned uses of oryzalin are likely to result in residues on feed items (e.g., alfalfa), formal feeding studies on a ruminant and chickens are needed. These studies must involve feeding the appropriate compounds as well as analysis of milk, eggs and tissues for the terminal residue of concern (see plant and animal metabolism requirements above). Levels should be at least 1X, 3X and 10X the maximum levels expected from all sources of dietary burden to the cows and chickens.

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.130 Environmental Fate					
Degradation Studies-Lab					
161-1 - Hydrolysis	TGAI or PAIRA	ABFG	No	-	Yes - 9 months
Photodegradation					
161-2 - In water	TGAI or PAIRA	ABG	No	-	Yes - 9 months
161-3 - On soil	TGAI or PAIRA	AG	No	-	Yes - 9 months
161-4 - In Air	TGAI or PAIRA	F	No	-	Yes - 9 months
Metabolism Studies-Lab					
162-1 - Aerobic Soil	TGAI or PAIRA	ABFG	No	-	Yes - 27 months
162-2 - Anaerobic Soil	TGAI or PAIRA	A	No	-	Yes - 27 months
162-3 - Anaerobic Aquatic	TGAI or PAIRA	G	No	-	Yes - 27 months
162-4 - Aerobic Aquatic	TGAI or PAIRA	N/A[1]			

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.130 Environmental Fate (Continued)					
Mobility Studies					
163-1 - Leaching and Adsorption/Desorption	TGAI or PAIRA	ABFG	No	-	Yes - 12 months
163-2 - Volatility (Lab)	TEP	F	No	-	Yes - 12 months
163-3 - Volatility (Field)	TEP	F	No	-	No2/
Dissipation Studies-Field					
164-1 - Soil	TEP	ABG	No	-	Yes - 27 months
164-2 - Aquatic (Sediment)	TEP	N/A1/			
164-3 - Forestry	TEP	G	No	-	Yes - 27 months
164-4 - Combination and Tank Mixes		N/A1/			
164-5 - Soil, Long-term	TEP	AB	No	-	Conditional3/

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.130 Environmental Fate (Continued)					
Accumulation Studies					
165-1 - Rotational Crops (Confined)	PAIRA	A	No	-	Yes - 39 months
165-2 - Rotational Crops (Field)	TEP	A	No	-	Conditional3/
165-3 - Irrigated Crops	TEP	N/A1/			
165-4 - In Fish	TGAI or PAIRA	ABG	No	-	Yes - 12 months
165-5 - In Aquatic Non-Target Organisms	TEP	G	No	-	Yes - 12 months
Sub-Part K - Reentry		N/A			

1/ Data are not required because oryzalin has no aquatic or aquatic impact use.
2/ Data are contingent upon results of lab studies.
3/ Data are required unless soil residues reach 50% dissipation prior to recommended subsequent application to same sites or if aerobic soil metabolism demonstrates residues are greater than 50% of initial application at time of subsequent application. Consult with Agency upon completion of aerobic soil metabolism study to determine appropriate timeframe for conducting study.
4/ Required if residues of toxicological concern are detected in the test crops of confined study.

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.135 Toxicology					
Acute Testing					
81-1 - Acute Oral Toxicity - Rat	TGAI	ABFG	Yes	00026084 00038668 00026592 00106666 00026757 00106667	No
81-2 - Acute Dermal Toxicity	TGAI	ABFG	Yes	00041970 00106681 00094414	No
81-3 - Acute Inhalation Toxicity	TGAI	ABFG	Yes	00026769 00088513 00027289 00106660 00038673	No
81-4 - Primary Eye Irritation - Rabbit	TGAI	ABFG	Yes	00041970 00106681 00094414	No
81-5 - Primary Dermal Irritation - Rabbit	TGAI	ABFG	Yes	00038672 00106664	No
81-6 - Dermal Sensitization - Guinea Pig	TGAI	ABFG	Yes	00026762	No
81-7 - Acute Delayed Neurotoxicity - Hen	TGAI	N/A1/			

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.135 Toxicology (Continued)					
Subchronic Testing					
82-1 - 90-Day Feeding -	TGAI	AB	Yes	00026773 00038677	No
Non-rodent (Dog)	TGAI	AB	Yes	00106670	No
82-2 - 21-Day Dermal - Rabbit	TGAI	AB	Yes	00038672 00106664	No
82-3 - 90-Day Dermal	TGAI	N/A[1]			
82-4 - 90-Day Inhalation	TGAI	N/A[1]			
82-5 - 90-Day Neurotoxicity - Hen	TGAI	N/A[1]			
Chronic Testing					
83-1 - Chronic Toxicity -					
- Rodent	TGAI	AB	Yes	00026776 00038681	No
- Non-rodent (Dog)	TGAI	AB	No	-	Yes - 11/15/86[2]

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission,
§158.135 Toxicology (Continued)					
Chronic Testing (Continued)					
83-2 - Oncogenicity -					
- Rat	TGAI	AB	Yes	00044332 00070569	No
- Mouse	TGAI	AB	Yes	00026780 00068079	No
83-3 - Teratogenicity -					
- Rat	TGAI	AB	Yes	00026781 00038682	No
- Rabbit	TGAI	AB	Yes	00073552 00098461	No
83-4 - Reproduction	TGAI	AB	Yes	00026782 00042908	No

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.135 Toxicology (Continued)					
Mutagenicity Testing					
84-2 - Gene Mutation	TGAI	AB	Partial	00038150 00042910 00042911 00130427 00147050	Yes3/ - 9 months
84-2 - Chromosomal Aberration	TGAI	AB	Yes	00115743 00138696	No
84-4 - Other Genotoxic Effects DNA	TGAI	AB	Yes	00086801 00087801	No
Special Testing					
85-1 - General Metabolism	PAI or PAIRA	AB	Yes	00026592 00026761 00084886 00098463	No
86-1 - Domestic Animal Safety	Choice	HI	Yes	00026592 00106666 00106667	No

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B) Time Frames for Data Submission
§158.135 Toxicology (Continued)					
Additional Testing					
Human Exposure	TGAI and Formulated Products	N/A	Yes	00026788 00038774 00066198	No

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1/ The data requirement is inapplicable to this product.

2/ This study must include evaluation of thyroid gland chemistry and pathology to more fully assess thyroid function. Study submitted by registrant 12/86.

3/ Data may be upgraded to be acceptable on resolution of the reporting deficiencies described in the text.

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.145 Wildlife and Aquatic Organisms					
71-1 - Avian Single-Dose	TGAI	AB	Yes	00098462 1/ 00098464 2/ 00106728 2/	No
71-2 - Avian Dietary	TGAI	ABF3/G3/	Yes	00072593 2/ 00072594 2/	
71-3 - Wild Mammal Toxicity	N/A4/				
71-4 - Avian Reproduction	TGAI	AB	Yes	00126843 00129050	No5/
71-5 - Simulated and Actual Field Testing for Mammals and Birds	N/A4/				
72-1 - Fish Acute Toxicity	TGAI	ABF3/G3/	Yes	00072595 1/ 00106663 2/ 00106729 2/	No
72-2 - Acute Toxicity Aquatic Invertebrates	TGAI	ABFG	Yes	00072596 1/	No

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.145 Wildlife and Aquatic Organisms (Continued)					
72-3 - Acute Toxicity Estuarine and Marine Organisms	TGAI	A	No		Reserved[6]
72-4 - Fish Early Life Stage Aquatic Invertebrate Life-Cycle	TGAI	AB	Yes	00126841[1] 00126842[1]	Reserved[6]
72-5 - Fish - Life-Cycle	TEP	N/A[4]			
72-6 - Aquatic Organism Accumulation	TEP	N/A[4]			
72-7 - Simulated or Actual Field Testing for Aquatic Organisms	TEP	AB	Partially	00106665[2]	Reserved[6]

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[1] Study fulfills guideline requirement on its own.
[2] Study does not fulfill guideline requirement on its own.
[3] Only one species is required to support a manufacturing-use product.
[4] Available information indicates the study is not required.
[5] Not required at this time.
[6] Reserved pending evaluation of complete environmental fate data. If reserved studies are required, data must be submitted no later than 18 months after being required.

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.155 Nontarget Insect					
Nontarget Insect Testing - Pollinators					
141-1 - Honey bee acute contact toxicity	TGAI	ABG	Yes	00066220	No
141-2 - Honey bee - toxicity of residues on foliage	TEP	ABG	No	-	No1/
141-4 - Honey bee subacute feeding study	(Reserved)2/				
141-5 - Field testing for pollinators	TEP	ABG	No	-	No1/
Nontarget Insect Testing - Aquatic Insects					
142-1 - Acute toxicity to aquatic insects	(Reserved)3				
142-2 - Aquatic insect life-cycle study	(Reserved)3/				

TABLE A
GENERIC DATA REQUIREMENTS FOR ORYZALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes, No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA § 3(c)(2)(B)? Time Frame for Data Submission
§158.155 Nontarget Insect (Continued)					
Nontarget Insect Testing - Aquatic Insects					
142-3 - Simulated or actual field testing for aquatic insects	(Reserved)3/				
143-1 thru 143-3 - Nontarget Insect Testing - Predators and Parasites	(Reserved)3/				

1/ Based on the results of the acute toxicity study, there is sufficient information to characterize oryzalin as of very low toxicity to honeybees. Therefore, this study is not required.

2/ Requirement reserved pending development of test methodology.

3/ Requirement reserved pending Agency decision as to whether the data requirement should be established.

E. INSTRUCTIONS FOR SUBMISSION

This section describes what must be submitted and the timeframes for the submissions. Addresses are provided at the end of this section.

1. Requirements

a. For Manufacturing-Use Products Containing Oryzalin as Sole Active Ingredient

(1) Within 90 days from receipt of this Standard, registrants must submit the "FIFRA Section 3(c)(2)(B) Summary Sheet," EPA Form 8580-1 (Appendix E).

(2) Within 6 months from receipt of this Standard, registrants must submit:

(a) Confidential Statement of Formula, EPA Form 8570-4.

(b) Two copies of draft labeling, including the label and associated brochures. If current labeling conforms to the requirements of this Standard and the results of the short-term data, such labeling must be submitted. The labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8-1/2 x 11 inch files. The draft label must indicate the intended colors of the final label, clear indication of the front panel label, and the intended type sizes of the text.

(c) Evidence of compliance with data support requirements of FIFRA sec. 3(c)(1)(D). Refer to 40 CFR 152.80-152.99 for latest requirements.

(3) Within the times set forth in Table A, registrants must submit all generic data, unless they are eligible for the formulator's exemption.

b. For Manufacturing Use Products Containing Oryzalin in Combination With Other Active Ingredients

(1) Within 90 days from receipt of this Standard, registrants must submit the "FIFRA Section 3(c)(2)(B) Summary Sheet," EPA Form 8580-1 (Appendix E).

(2) Within the times set forth in Table A, registrants must submit all generic data, unless they are eligible for the formulator's exemption.

c. For End-Use Products Containing Oryzalin

(1) Within 90 days from receipt of this Standard, registrants must submit the "FIFRA Section 3(c)(2)(B) Summary Sheet," EPA Form 8580-1 (Appendix E).

(2) Within 6 months from receipt of this Standard, registrants must submit:

(a) Confidential Statement of Formula, EPA Form 8570-4.

(b) Two copies of draft labeling, including the label and associated brochures. If current labeling conforms to the requirements of this Standard and the results of the short-term data, such labeling should be submitted. End-use product labeling must comply specifically with the instructions in this Standard. Labeling should be either typewritten text on 8 1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8 1/2 inch files. The draft label must indicate the intended colors of the final label, clear indication of the front panel label, and the intended type sizes of the text.

(3) Within the time frames set forth in Table A, registrants must submit all generic data, unless they are eligible for the formulator's exemption.

d. Products Qualifying for Formulator's Exemption. Within 90 days from receipt of this Standard, registrants must submit a Formulator's Exemption Statement, Appendix G. They must also submit revised labeling as set forth above and a current Confidential Statement of Formula or certify that the Confidential Statement of Formula on file is complete, current and accurate.

2. Submissions to Product Manager. Applications and other required information should be submitted to the Product Manager, Registration Division. If, for any reason, any test is delayed or aborted so that the agreed schedule cannot be met, the Product Manager must be notified. The address for submissions to the Product Manager is:

Mr. Robert J. Taylor
Product Manager
Registration Division (TS-767C)
Office of Pesticide Programs
Environmental Protection Agency
401 M Street, SW.
Washington, D.C. 20460
Phone No. (703) 557-1800

3. Submissions to the Office of Compliance Monitoring. If, on the FIFRA Section 3(c)(2)(B) Summary Sheet, a registrant commits to develop the data, requests a minor chemical exemption, presents arguments that a data requirement is not applicable, or submits protocols or modified protocols for Agency review, the registrant must also submit a copy of the Summary Sheet (and any supporting information) to the Office of Compliance Monitoring, which will be monitoring the data generated in response to this Standard. Actual studies are not to be submitted.

If for any reason any test is delayed or aborted so that the agreed schedule cannot be met, the Office of Compliance Monitoring must also be notified.

The address for submission to the Office of Compliance Monitoring is:

Laboratory Data Integrity Program
Office of Compliance Monitoring (EN-342)
Environmental Protection Agency
401 M Street, SW.
Washington, D.C. 20460

APPENDIX A

EPA INDEX TO PESTICIDE CHEMICALS

ORYZALIN

ORYZALIN*

TYPE PESTICIDE: Herbicide

FORMULATIONS:
WP (75%)
EC (1.5 lb/gal, 2 lb/gal)
FlC (4 lb/gal)

GENERAL WARNINGS AND LIMITATIONS: A selective, surface-applied herbicide for preemergent control of most annual grasses and certain broadleaf weeds. Oryzalin will not control established weeds. Existing weeds must be destroyed prior to application. Chop and thoroughly mix crop residues into the soil to a depth of at least 4 to 6 inches by deep plowing or discing, and break up large clods. A 0.5 inch of rain or its equivalent in center pivot or sprinkler irrigation is necessary to activate oryzalin. If weeds begin to emerge, shallow cultivate 1 to 2 inches to destroy existing weeds and place oryzalin in the zone of weed seed germination. If heavy rains pack the soil surface, use a rotary hoe to break the crust to aid crop emergence. Silty clay loams and sandy clay loams are transitional soils and may be classified as either medium or heavy textured soils. Unless otherwise specified, use the lower dosage on coarse and medium textured soils, and the higher dosage on fine textured soils. Oryzalin is not recommended for use on soils containing more than 5 percent organic matter. Make only 1 application per season. Dosages are expressed as pounds a.i. broadcast rate per acre. For band applications, reduce dosage in proportion to band area actually treated. When tank mixes are used, observe all precautions and limitations given on the labeling of tank mix chemicals. Apply in 20 to 40 gallons of water per acre by ground or 2 to 10 gallons by air, unless otherwise specified.

Definition of Terms:
a.i. - active ingredient

TIME REQUIRED FOR CONTROL: Not located.

PHYTOTOXICITY TO TARGET WEEDS: Not located.

PHYTOTOXICITY TO CROPS: Not located.

MODE OF ACTION: Inhibits both root and shoot growth when absorbed by the roots of germinating plants.

*Surflan
3,5-dinitro-N^4,N^4-dipropylsulfanilamide

BROADLEAF WEEDS CONTROLLED:

PBFDCBC	Annual sowthistle	(a)
PBKAIAA	Bittercress	
PBKAFBF	Black mustard	(a)
PEWAIBE	Black nightshade	(a)
PADABBA	Carpetweed	
PAZAAAC	Chickweed	
PAMAIBA	Climbing milkweed	(a)
PARABBB	Coast fiddleneck	
PAZAOBB	Common chickweed	
PBFCXBK	Common groundsel	(a)
PBDAEBA	Common lambsquarters	
PDAAHBB	Common mallow	(a)
PEDADBA	Common purslane	
PBFAEBA	Common ragweed	(a)
PDPABBA	Creeping woodsorrel	
PEMAEBB	Florida pusley	
PBFAEBE	Giant ragweed	(a)
PCOAFBA	Henbit	
PBFAVBA	Horseweed	(a)
PEAAGBP	Ladysthumb	(a)
PBDAEAB	Lambsquarters	
PBKBDBB	London rocket	(a)
PEMAEAA	Mexican clover	
PBGAAAB	Morningglory	(a)
AAGBO	Pennsylvania smartweed	(a)
PAAAABI	Pigweed	
PBFCEBF	Prickly lettuce	(a)
PDAAJBF	Prickly sida	(a)
PEAAGBD	Prostrate knotweed	
PAFACBC	Prostrate pigweed	
PBVAGBQ	Prostrate spurge	(a)(b)
PFMAFBB	Puncturevine	
PAAAABP	Purslane	
PEDABBA	Redmaids rockpurslane	(a)
PAFACBI	Redroot pigweed	
PBZABBB	Redstem filaree	(a)
PEDABAA	Rockpurslane	(a)
PAFACAB	Rough pigweed	
PBKAHBA	Shepherdspurse	(a)
PEAAGAD	Smartweed	(a)
PAFACBE	Smooth pigweed	
PAFACBJ	Spiny amaranth	
PBVAGBK	Spotted spurge	(a)
PAFACBA	Tumble pigweed	
PDAABBB	Velvetleaf	(a)
PBZABBC	Whitestem filaree	(a)
PBKAFBE	Wild mustard	(a)

(a) Partial control or suppression only.
(b) Provides control on fine textured soils in cotton at 1.5 lb a.i./A.

ORYZALIN

GRASSES AND OTHER MONOCOTS CONTROLLED:

PCACKBA	Annual bluegrass	
PCABHBB	Barnyardgrass	
PCACEBE	Browntop panicum	(b)
PCAAUBA	Buffalograss	(b)
PCABFAA	Crabgrass	
PCABCBA	Crowfootgrass	
PCABLAA	Cupgrass	
PCACEBD	Fall panicum	
PCAAWBB	Field sandbur	
PCACUAA	Foxtail	
PCACUBA	Giant foxtail	
PCABIBA	Goosegrass	
PCACUBF	Green foxtail	
PCABZBA	Italian ryegrass	
PCACWBG	Johnsongrass (seedling)	
PCABHBA	Junglerice	
PCABFBF	Large crabgrass	
PCABSBF	Little barley	
PCABKBE	Mexican lovegrass	
PCABKBK	Orcutt lovegrass	
PCABYBB	Red sprangletop	
PCACCBA	Rice	
PCACUAC	Robust foxtail	
PCAARAA	Signalgrass	
ABFBD	Smooth crabgrass	
PCABLBA	Southwestern cupgrass	
PCACEBL	Texas panicum	(b)
PCADFBA	Wheat (volunteer)	(a)
PCAAOBB	Wild oat	
PAAAABC	Wiregrass	
PCACEBC	Witchgrass	
PCACUBD	Yellow foxtail	

(a) Partial control or suppression only.
(b) Provides control on fine textured soils in cotton at 1.5 lb a.i./A.

ORYZALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations

TERRESTRIAL FOOD CROP

(Agricultural Crops)

General Warnings and Limitations: Do not apply to newly transplanted fruit and nut trees, or vineyards until the soil has settled and there are no cracks present. Do not apply via center pivot irrigation systems to fruit and nut orchards or vineyards. In CA do not apply to non-dormant fruit and nut orchards or vineyards through overhead sprinkler irrigation systems.

/03001AA	Almond	0.05 ppm (nuts and almond hulls)
	2-6 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with dichlobenil; paraquat dichloride; simazine; glyphosate, isopropylamine salt; norflurazon; or oxyfluorfen.
4001AA	Apple	0.05 ppm (pome fruits)
	2-6 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with terbacil; dichlobenil; diuron; paraquat dichloride; simazine; glyphosate, isopropylamine salt; or norflurazon.
/04001DA	Apple (nursery stock)	N.F.
/04003DA	Bartlett Pear (nursery stock)	
/05002DA	Cherry (nursery stock)	
	2-4 (75% WP) (4 lb/gal FlC)	Broadcast. Apply as an over-the-top or directed spray. Use 2 lb a.i./A for control to last for 2 to 4 months, and 4 lb a.i./A for 6 to 8 months. Apply only to established plantings. Rooted liners should be established in containers 2 weeks prior to treatment or crop injury may occur. Directed spray may be tank mixed with glyphosate, isopropylamine salt.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/05001AA	Apricot	0.05 ppm (stone fruits)
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with paraquat dichloride; norflurazon; or oxyfluorfen.
/06001AA	Avocado	0.05 ppm
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with paraquat dichloride; simazine; or glyphosate, isopropylamine salt.
	Bartlett Pear (nursery stock)	See Apple (nursery stock) cluster.
/01002AA /01009AA	Blackberry Blueberry	0.05 ppm (small fruits)
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with terbacil; dichlobenil; diuron; paraquat dichloride; or simazine.
/01003AA	Boysenberry	0.05 ppm (small fruits)
	2-6 (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with terbacil; diuron; paraquat dichloride; or simazine.
	Cherry (nursery stock)	See Apple (nursery stock) cluster.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/05002AA	Cherry (Sour, Sweet)	0.05 ppm (stone fruits)
	2-6 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with dichlobenil; paraquat dichloride; simazine; glyphosate, isopropylamine salt; or norflurazon.
/28007AA	Cotton	0.05 ppm (cottonseed) Do not feed forage from treated fields to livestock. Do not plant any root crop for 12 months following an application.
	1-1.5 (75% WP) (4 lb/gal FlC)	Use limited to TX. Preemergence. Broadcast. Apply at planting or within 2 days after planting. Use the lower dosage on medium textured soils and the higher dosage on fine textured soils. May be applied by air.
1011AA /01012AA	Currant Elderberry	0.05 ppm (small fruits)
	2-6 (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months.
/01004AA	Dewberry	0.05 ppm (small fruits)
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with terbacil; diuron; or simazine.
	Elderberry	See Currant cluster.

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	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/03009AA /04003AA	English Walnut Pear	0.05 ppm (nuts, pome fruits)
	2-6 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with dichlobenil; diuron; paraquat dichloride; simazine; glyphosate, isopropylamine salt; or norflurazon.
/06005AA	Fig	0.05 ppm
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with paraquat dichloride.
'3005AA	Filbert	0.05 ppm (nuts)
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with dichlobenil; paraquat dichloride; simazine; norflurazon; or oxyfluorfen.
/01013AA	Gooseberry	0.05 ppm (small fruits)
	2-6 (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with diuron.
/01014AA	Grapes	0.05 ppm (small fruits)
	2-6 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with dichlobenil; diuron; or simazine.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/02002AA /02004AA /02006AA	Grapefruit Lemon Orange	0.05 ppm (citrus fruits)
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with bromacil; terbacil; diuron; paraquat dichloride; simazine; glyphosate, isopropylamine salt; norflurazon; or bromacil and terbacil.
/06018AA /06015AA	Kiwi Fruit Pomegranate	0.05 ppm (kiwifruits, pomegranates)
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months.
	Lemon	See Grapefruit cluster.
/01005AA	Loganberry	0.05 ppm (small fruits)
	2-6 (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with terbacil; diuron; or simazine.
/03007AA	Macadamia Nut	0.05 ppm (nuts)
	2-6 (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with diuron; or simazine.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/28012AA	Mint (Peppermint, Spearmint)	0.05 ppm (hay) 0.1 ppm (oil)
		General Information: Deep plow prior to planting rotational crops within 15 months of application. Do not apply to mint growing under adverse conditions or to mint weakened by severe winter injury.
	1-1.5 (75% WP) (4 lb/gal FlC)	Preharvest or postharvest. Broadcast application for use on coarse and medium textured soils. Apply up to 60 days before harvest or to mint stubble any time following harvest in the fall.
	1-1.5 (75% WP) (4 lb/gal FlC)	Use limited to the Midwest. Preemergence. Broadcast application. For use on coarse and medium textured soils. Apply to established mint just after the last cultivation. Tank mix with terbacil.
	1-1.5 (4 lb/gal FlC)	Use limited to the Pacific Northwest (west of the Cascade Mountains). Preemergence. Broadcast application for use on coarse and medium textured soils. Apply to established mint in the spring or fall after the last cultivation. Tank mix with terbacil.
	1-1.5 (4 lb/gal FlC)	Use limited to the Pacific Northwest (east of the Cascade Mountains). Preemergence. Broadcast application for use on coarse and medium textured soils. Apply any time after the first settling rain in the fall, but not when ground is frozen. If moisture is inadequate to activate the herbicide, irrigation by sprinkler must follow fall or winter treatment as soon as soil thaws in the spring, or immediately after spring treatment. Tank mix with terbacil.
/05003AA	Nectarine	0.05 ppm (stone fruits)
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with dichlobenil; paraquat dichloride; norflurazon; or oxyfluorfen.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/06009AA	Olive	0.05 ppm
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with diuron; paraquat dichloride; or simazine.
	Orange	See Grapefruit cluster.
/05004AA	Peach	0.05 ppm (stone fruits)
	2-6 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with terbacil; dichlobenil; diuron; paraquat dichloride; simazine; or oxyfluorfen.
/28016AA	Peas (English, Green)	0.05 ppm (peas, succulent) Do not feed forage from treated fields to livestock. Do not plant any root crop for 12 months following application.
	0.5 (4 lb/gal FlC)	Preplant. Broadcast. Apply up to 2 weeks prior to planting. Tank mix with trifluralin.
/03008AA	Pecan	0.05 ppm (nuts)
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with terbacil; dichlobenil; diuron; paraquat dichloride; simazine; or glyphosate, isopropylamine salt.

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	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/03011AA	**Pistachio**	0.05 ppm (nuts)
	2-6 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with glyphosate, isopropylamine salt.
/05005AA	**Plum**	0.05 ppm (stone fruits)
	2-6 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with dichlobenil; paraquat dichloride; simazine; norflurazon; or oxyfluorfen.
	Pomegranate	See Kiwi Fruit cluster.
013AA	**Potato (White)**	0.05 ppm
	0.75-1 (75% WP) (4 lb/gal FlC)	Preemergence. Broadcast. Where rebedding and drag-off are standard cultural practices, applications should be made following drag-off. For use on coarse and medium textured soils. May be tank mixed with metribuzin.
/05006AA	**Prune**	0.05 ppm (stone fruits)
	2-6 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with paraquat dichloride; norflurazon; or oxyfluorfen.
/01006AA	**Raspberry**	0.05 ppm (small fruits)
	2-6 (75% WP) (4 lb/gal FlC)	Directed spray. Broadcast or band application to orchard floor for short and long term weed control. Use 2 lb a.i./A for control to last for 2 to 4 months, 4 lb a.i./A for 6 to 8 months, and 6 lb a.i./A for 8 to 12 months. May be tank mixed with terbacil; dichlobenil; diuron; paraquat dichloride; or simazine.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/28023AA	**Soybeans**	0.1 ppm Do not feed forage or vines from treated fields to livestock. Do not plant any root crop for 12 months following an application. General Information: Aerial applications may be made when oryzalin is applied alone or in tank mix with linuron; metribuzin; or dinoseb and naptalam.
	0.28-0.56 (1.5 lb/gal EC)	Preplant soil incorporation. Apply in the spring and incorporate into top 1 to 3 inches of the soil within 3 days after application. Treated soil may be shallow cultivated without reducing weed control; do not cultivate deeper than the treated soil. May be applied in conjunction with a liquid fertilizer or impregnated on a dry bulk fertilizer. May be applied by air. Formulated with trifluralin.
	0.28-0.56 (1.5 lb/gal EC)	Preplant soil incorporation. Incorporate into top 1 to 3 inches of the soil within 3 days after application. Tank mix with chloramben; or metribuzin. Formulated with trifluralin.
	0.5-1.25 (75% WP)	Use limited to AR, LA, MS and TX. Preplant. Broadcast or band application for the suppression of rice. Apply up to 2 weeks prior to planting. Tank mix with metribuzin.
	0.75-1.5 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Preplant or preemergence. Broadcast or band. Apply from 4 weeks prior to planting up through 2 days after planting.
	0.5-1.25 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Preplant or preemergence. Broadcast or band. Apply from 2 to 4 weeks prior to planting up through 2 days after planting, but before crop emerges. Tank mix with metribuzin.
	0.5-1.25 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Preemergence. Broadcast or band. Apply within 2 days after planting, but before crop emergence. Tank mix with chloramben; linuron; or naptalam and dinoseb.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Soybeans (continued)	
	1-1.5 (4 lb/gal FlC)	Broadcast or band application. Apply anytime after harvest in the fall up to spring seeding and prior to weed germination. Application can be made directly over undisturbed stubble from the previous crop. Use the lower rate under light crop residue conditions and under light weed pressure. Sequential herbicide applications can be made in the spring to control escaped broadleaf weeds and to provide control of weeds not controlled by oryzalin. Do not till soil after oryzalin application and before planting.
	0.75-1.5 (75% WP) (2 lb/gal EC) (4 lb/gal FlC)	Preemergence. Broadcast or band application for use in no-till soybeans. Apply at planting or within 2 days after planting. Do not spray over the top of emerged soybeans. Tank mix with linuron; metribuzin; linuron and paraquat dichloride; linuron and glyphosate, isopropylamine salt; paraquat dichloride and metribuzin; or metribuzin and glyphosate, isopropylamine salt.
	TERRESTRIAL NON-FOOD CROP	
	(Agricultural Crops)	
/26005AA	Tobacco, Air Cured (Burley, Maryland, Dark)	N.F. Do not plant any root crop for 12 months following application.
/26006AA	Tobacco, Flue Cured	
	0.5-1 (4 lb/gal FlC)	Posttransplant. Directed spray. Apply at layby following the last normal cultivation, usually 4 to 6 weeks after transplanting. Do not allow spray to contact tobacco plants. Do not spray in the bud stage of the tobacco plants, as crop injury may occur. If weeds begin to emerge, a shallow cultivation of 1 to 2 inches is recommended.

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	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	(Ornamental Plants and Forest Trees)	
/31303AA	African Trailing Daisy	
/34427AA	Akeake	
/34148AA	Algerian Ivy	
/35288AA	American Holly (Howard)	
/35288DA	American Holly (Howard) (nursery stock)	
/34487AA	Amur Privet	
/34487DA	Amur Privet (nursery stock)	
/35315AA	Andorra Juniper	
/34543AA	Argentine Trumpet-vine	
/34543DA	Argentine Trumpet-vine (nursery stock)	
/34297AA	Azalea (Gable Hybrids)	
/34297DA	Azalea (Gable Hybrids) (nursery stock)	
/34545AA	Azalea (Louisa)	
/34545DA	Azalea (Louisa) (nursery stock)	
/31034AA	Begonia	
/33086AA	Big Blue Lilyturf (Ground Cover)	
/33086DA	Big Blue Lilyturf (Ground Cover) (nursery stock)	
/34451AA	Bigleaf Wintercreeper	
/34451DA	Bigleaf Wintercreeper (nursery stock)	
/31038AA	Bird-of-Paradise	
/35033AA	Blue Spruce	
/35033DA	Blue Spruce (nursery stock)	
/34346AA	Border Forsythia	
/34031AA	Boxwood	
/34031DA	Boxwood (nursery stock)	
/34421AA	Bright Bead Cotoneaster	
/35378AA	Brush Cherry	
/35378DA	Brush Cherry (nursery stock)	

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	African Trailing Daisy cluster (continued)	
/35386AA	California-Laurel	
/35385AA	Canary Pine	
/35385DA	Canary Pine (nursery stock)	
/34157AA	Cape-Jasmine	
/34157DA	Cape-Jasmine (nursery stock)	
/35384AA	Carolina Cherry-Laurel	
/34158AA	Ceanothus	
/34158DA	Ceanothus (nursery stock)	
/34040AA	Cherry Laurel	
/34417AA	Chinese Firethorn	
/34417DA	Chinese Firethorn (nursery stock)	
/34160AA	Chinese Hibiscus	
/34161AA	Chinese Holly	
/34161DA	Chinese Holly (nursery stock)	
/35155AA	Chinese Juniper	
/35155DA	Chinese Juniper (nursery stock)	
/34419AA	Chinese Star-Jasmine	
/34486AA	Coast Leucothoe	
/34486DA	Coast Leucothoe (nursery stock)	
/31493AA	Common Geranium	
/31496AA	Common Zinnia	
/34305AA	Convex Leaf Holly	
/34305DA	Convex Leaf Holly (nursery stock)	
/34560AA	Cotoneaster Parneyi	
/34560DA	Cotoneaster Parneyi (nursery stock)	
/34244AA	Cranberry Cotoneaster	
/34244DA	Cranberry Cotoneaster (nursery stock)	
/34046AA	Crape Myrtle	
/34046DA	Crape Myrtle (nursery stock)	
/35160AA	Creeping Juniper	
/35160DA	Creeping Juniper (nursery stock)	
/35236AA	Cryptomeria	
/35236DA	Cryptomeria (nursery stock)	

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	African Trailing Daisy cluster (continued)	
/33130AA	Dwarf Coyotebrush	
/31237AA	Easter Cactus	
/31237DA	Easter Cactus (nursery stock)	
/35047AA	Eastern Redcedar	
/35047DA	Eastern Redcedar (nursery stock)	
/35048AA	Eastern White Pine	
/35237AA	Ellwood False Cypress	
/35237DA	Ellwood False Cypress (nursery stock)	
/34323AA	Emerald Cushion Euonymus	
/34323DA	Emerald Cushion Euonymus (nursery stock)	
/35169AA	English Holly	
/34052AA	English Ivy	
/34561AA	Escallonia (Frades)	
/34561DA	Escallonia (Frades) (nursery stock)	
/35297AA	Eucalyptus cinerea	
/34233AA	Evergreen Euonymus	
/34233DA	Evergreen Euonymus (nursery stock)	
/34172AA	Fatshedera	
/34172DA	Fatshedera (nursery stock)	
/34056AA	Fetter-Bush	
/34056DA	Fetter-Bush (nursery stock)	
/34237AA	Floribunda Rose	
/34237DA	Floribunda Rose (nursery stock)	
/31491AA	Florists' Chrysanthemum	
/34176AA	Formosan Pyracantha	
/34176DA	Formosan Pyracantha (nursery stock)	
/34518AA	Fraser Photinia	
/34518DA	Fraser Photinia (nursery stock)	
/31239AA	French Marigold	
/31494AA	Garden Petunia	
/35062AA	Ginkgo	
/35062DA	Ginkgo (nursery stock)	

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	African Trailing Daisy cluster (continued)	
/34422AA	Glossy Abelia	
/34179AA	Glossy Privet	
/34179DA	Glossy Privet (nursery stock)	
/35063AA	Golden-Rain Tree	
/33104AA	Greater Periwinkle (Ground Cover)	
/35403AA	Greek Juniper	
/35403DA	Greek Juniper (nursery stock)	
/34331AA	Greek Myrtle	
/34331DA	Greek Myrtle (nursery stock)	
/34313AA	Hiryu Azalea (Hinodegiri)	
/34313DA	Hiryu Azalea (Hinodegiri) (nursery stock)	
/34071AA	Holly osmanthus	
4238AA	Hybrid Tea Roses	
/34238DA	Hybrid Tea Roses (nursery stock)	
/34075AA	India Hawthorn	
/34075DA	India Hawthorn (nursery stock)	
/35340AA	Interior Live Oak	
/35340DA	Interior Live Oak (nursery stock)	
/35182AA	Italian Cypress	
/35182DA	Italian Cypress (nursery stock)	
/34078AA	Japanese Andromeda	
/34078DA	Japanese Andromeda (nursery stock)	
/34079AA	Japanese Barberry	
/34079DA	Japanese Barberry (nursery stock)	
/35185AA	Japanese Black Pine	
/35185DA	Japanese Black Pine (nursery stock)	
/34272AA	Japanese Boxwood	
/34272DA	Japanese Boxwood (nursery stock)	
/33119AA	Japanese Garden Juniper (Ground Cover)	

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	African Trailing Daisy cluster (continued)	
/33119DA	Japanese Garden Juniper (Ground Cover) (nursery stock)	
/34307AA	Japanese Honeysuckle	
/34310AA	Japanese Pittosporum	
/34310DA	Japanese Pittosporum (nursery stock)	
/34188AA	Japanese Privet	
/34188DA	Japanese Privet (nursery stock)	
/35072AA	Japanese Yew	
/34285AA	Laurustinus	
/34285DA	Laurustinus (nursery stock)	
/34414AA	Lemon Bottlebrush	
/34414DA	Lemon Bottlebrush (nursery stock)	
/33103AA	Lesser Periwinkle (Ground Cover)	
/34089AA	Lilac	
/34089DA	Lilac (nursery stock)	
/31411AA	Lily-of-the-Nile	
/31411DA	Lily-of-the-Nile (nursery stock)	
/34504AA	Lowfast Bearberry Cotoneaster	
/34504DA	Lowfast Bearberry Cotoneaster (nursery stock)	
/34091AA	Manzanita	
/34097AA	Mountain-Laurel	
/35289AA	Myoporum	
/34100AA	Nandina	
/34100DA	Nandina (nursery stock)	
/35328AA	Narrow Leaved Black Peppermint	
/35328DA	Narrow Leaved Black Peppermint (nursery stock)	
/34562AA	Old-fashioned Weigela	
/34102AA	Oleander	
/34102DA	Oleander (nursery stock)	
/[illegible]103AA	Oregongrape	
/[illegible]254AA	Oriental Arborvitae	

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	African Trailing Daisy cluster (continued)	
/35254DA	Oriental Arborvitae (nursery stock)	
/31149AA	Pansies	
/33117AA	Purpleleaf Wintercreeper	
/33117DA	Purpleleaf Wintercreeper (nursery stock)	
/34353AA	Pyrenees Cotoneaster	
/35380AA	Red Ironbark Eucalyptus	
/34492AA	Rhododendron (PJM Hybrids)	
/34492DA	Rhododendron (PJM Hybrids) (nursery stock)	
/34555AA	Rhododendron (Ponticum Hybrids)	
/34555DA	Rhododendron (Ponticum Hybrids) (nursery stock)	
/34493AA	Rhododendron (Rosebud)	
/34493DA	Rhododendron (Rosebud) (nursery stock)	
/34205AA	Rockspray Cotoneaster	
/34205DA	Rockspray Cotoneaster (nursery stock)	
/35354AA	Rocky Mountain Juniper	
/35354DA	Rocky Mountain Juniper (nursery stock)	
/35491AA	Rocky Mountain Sugar Maple	
/35491DA	Rocky Mountain Sugar Maple (nursery stock)	
/34120AA	Rose	
/34208AA	Sakaki	
/34208DA	Sakaki (nursery stock)	
/34122AA	Sandankwa Viburnum	
/35205AA	Savin Juniper	
/35205DA	Savin Juniper (nursery stock)	
/ 295AA	Scarlet Firethorn	

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	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	African Trailing Daisy cluster (continued)	
/34295DA	Scarlet Firethorn (nursery stock)	
/34420AA	Shiny Xylosoma	
/35209AA	Shore Juniper	
/35209DA	Shore Juniper (nursery stock)	
/31420AA	Shortleaf Stonecrop	
/31408AA	Shrimp Plant	
/31408DA	Shrimp Plant (nursery stock)	
/35388AA	Soap Tree	
/35388DA	Soap Tree (nursery stock)	
/35216AA	Southern Magnolia	
/33126AA	St. John's-Wort (Ground Cover)	
/35118AA	Sweetgum	
/35118DA	Sweetgum (nursery stock)	
5393AA	Swiss Mountain Pine	
/35393DA	Swiss Mountain Pine (nursery stock)	
/31455AA	Treasure Flower	
/34309AA	Vicary Golden Privet	
/34309DA	Vicary Golden Privet (nursery stock)	
/35123AA	Western Redcedar	
/35123DA	Western Redcedar (nursery stock)	
/35137AA	Wilson Chinese Juniper	
/35137DA	Wilson Chinese Juniper (nursery stock)	
/34232AA	Winged Euonymus	
/34388AA	Yaupon	
/34388DA	Yaupon (nursery stock)	
/35253AA	Yew Podocarpus	
/35253DA	Yew Podocarpus (nursery stock)	
/31492AA	Zanzibar Balsam	

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
African Trailing Daisy cluster (continued)	
	General Information: Apply only to established plantings. Rooted liners should be established in containers 2 weeks prior to treatment or crop injury may occur. On container grown ornamentals where weed germination continues for extended periods of time, repeat applications may be made after 90 days. Do not apply in ornamental plantings where the likelihood of runoff onto lawn areas containing dichondra or cool season turfgrasses exists, as severe injury or death may occur. Do not plant any ornamental species not listed into soil treated the previous season or injury may occur.
2-4 (75% WP) (4 lb/gal FlC)	Broadcast application for short and long term weed control. Apply as a directed or over-the-top spray. Use the higher dosage when long term (6 to 8 months) control is desired.
2-4 (75% WP) (4 lb/gal FlC)	Directed spray to undesirable vegetation. Use the higher dosage when long term (6 to 8 months) weed control is desired. Tank mix with glyphosate, isopropylamine salt.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/33107AA	Largeleaf Iceplant (ground cover)	
/31996AA	White Iceplant	
		General Information: When establishing unrooted iceplant on coarse soils in landscape plantings, use only the 2 lb a.i./A dosage. After the iceplant is well established, a second application may be made. Apply only to established plantings. Rooted lirers should be established in containers 2 weeks prior to treatment or crop injury may occur. On container grown ornamentals where weed germination continues for extended periods of time, repeat applications may be made after 90 days. Do not apply in ornamental plantings where the likelihood of runoff onto lawn areas containing dichondra or cool season turfgrasses exists, as severe injury or death may occur. Do not plant any ornamental species not listed into soil treated the previous season or injury may occur.
	2-4 (75% WP) (4 lb/gal FlC)	Broadcast application for short and long term weed control. Apply as a directed or over-the-top spray. Use the higher dosage when long term (6 to 8 months) control is desired.
	2-4 (75% WP) (4 lb/gal FlC)	Directed spray to undesirable vegetation. Use the higher dosage when long term (6 to 8 months) weed control is desired. Tank mix with glyphosate, isopropylamine salt.
	(Noncrop, Wide Area, and General Outdoor Treatments)	
/670040A	Highway Rights-of-Way	
/670060A	Utility Rights-of-Way	
		General Information: Use for control of weeds in or around utility substations, highway guardrails, sign posts and delineators and similar sites.
	2-4 (75% WP) (4 lb/gal FlC)	Broadcast. Apply to weed foliage. Use the higher dosage for long term weed control. May be tank mixed with MSMA; dalapon; paraquat dichloride; or glyphosate, isopropylamine salt.

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	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	GREENHOUSE NON-FOOD CROP	
	(Ornamental Plants and Forest Trees)	
/40005CA	Greenhouse Benches	
	0.75-1.5 oz a.i./ 1,000 sq.ft (75% WP) (4 lb/gal FlC)	Directed spray. Apply to drainage areas under greenhouse benches. Use the higher dosage for long term weed control.
	0.75-1.5 oz a.i./ 1,000 sq.ft (75% WP) (4 lb/gal FlC)	Directed spray to emerged weeds. Use the higher dosage for long term weed control. Tank mix with MSMA; dalapon; paraquat dichloride; or glyphosate, isopropylamine salt.
	FORESTRY	
/30153AA	Alpine Fir	
/30084AA	Austrian Pine	
/30128AA	Balsam Fir	
0111AA	Bishop Pine	
30107AA	Black Spruce	
/30141AA	Blue Spruce	
/30005AA	Christmas Tree Plantations	
/30152AA	Coulter Pine	
/30039AA	Douglas-Fir	
/30100AA	Eastern White Pine	
/30093AA	Englemann Spruce	
/30129AA	Fraser Fir	
/30090AA	Grand Fir	
/30112AA	Monterey Pine	
/30130AA	Norway Spruce	
/30062AA	Redwood	
/30113AA	Scotch Pine	
/30154AA	Veitch Fir	
/30092AA	White Fir	
/30108AA	White Spruce	
	2-4 (75% WP) (4 lb/gal FlC)	Broadcast application for short or long term weed control. Apply as a directed or over-the-top spray. Use the higher dosage for long term (6 to 8 months) control. Tank mix with simazine.

ORYZALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	AERIAL AND TANK MIX APPLICATIONS	
9001500 AAAAAAA	Aerial Application	
	--	Refer to TERRESTRIAL FOOD CROP (Agricultural Crops) Cotton, Soybeans
9900300 AAAAAAA	Tank Mix	
	--	Refer to TERRESTRIAL FOOD CROP (Agricultural Crops) All sites except Cotton, Currant, Elderberry, Kiwi Fruit, Pomegranate GREENHOUSE NON-FOOD CROP (Ornamental Plants and Forest Trees) Greenhouse Benches TERRESTRIAL NON-FOOD CROP (Ornamental Plants and Forest Trees) All sites (Non-crop, Wide Area, and General Outdoor treatments) All sites FORESTRY All sites

Listing of Registered Pesticide Products by Formulation

&075.0006 75% wettable powder
oryzalin (104201)
001471-00096 001471-00102

&101.5012 1.5 lb/gal emulsifiable concentrate
oryzalin (104201) plus trifluralin (036101)
001471-00137

&102.0012 2 lb/gal emulsifiable concentrate
oryzalin (104201)
001471-00105

&104.0014 4 lb/gal flowable concentrate
oryzalin (104201)
001471-00112 001471-00113

9999999 State Label Registrations

AL Reg. No.
001471-06080 001471-06107

CA Reg. No.
001471-06110 001471-06194

FL Reg. No.
001471-06108

GA Reg. No.
001471-06077

IN Reg. No.
001471-06104

KS Reg. No.
001471-06105

KY Reg. No.
001471-06106

MI Reg. No.
001471-06076

NC Reg. No.
001471-06253

OH Reg. No.
001471-06230

State Label Registrations (continued)

OK Reg. No.
001471-06078

TN Reg. No.
001471-06254

VA Reg. No.
001471-06079

EPA Index to Pesticide Chemicals

ORYZALIN

Appendix A

Listing of Common Chemical Names Used on the Entry

Chemical Code	Common Name (source)	EPA Acceptable Common/Chemical Name
013803	MSMA	monosodium acid methanearsonate
030702	naptalam	N-1-naphthylphthalamic acid

Appendix B

Listing by Site/Pest and Site/Form/Reg. No.

BROADLEAF WEEDS CONTROLLED:

PBFDCBC	Annual sowthistle
PBKAIAA	Bittercress
PBKAFBF	Black mustard
PEWAIBE	Black nightshade
PADABBA	Carpetweed
PAZAAAC	Chickweed
PAMAIBA	Climbing milkweed
PARABBB	Coast fiddleneck
PAZAOBB	Common chickweed
PBFCXBK	Common groundsel
PBDAEBA	Common lambsquarters
PDAAHBB	Common mallow
PEDADBA	Common purslane
PBFAEBA	Common ragweed
PDPABBA	Creeping woodsorrel
PEMAEBB	Florida pusley
PBFAEBE	Giant ragweed
PCOAFBA	Henbit
PBFAVBA	Horseweed
AAGBP	Ladysthumb
PBDAEAB	Lambsquarters
PBKBDBB	London rocket
PEMAEAA	Mexican clover
PBGAAAB	Morningglory
PEAAGBO	Pennsylvania smartweed
PAAAABI	Pigweed
PBFCEBF	Prickly lettuce
PDAAJBF	Prickly sida
PEAAGBD	Prostrate knotweed
PAFACBC	Prostrate pigweed
PBVAGBQ	Prostrate spurge
PFMAFBB	Puncturevine
PAAAABP	Purslane
PEDABBA	Redmaids rockpurslane
PAFACBI	Redroot pigweed
PBZABBB	Redstem filaree
PEDABAA	Rockpurslane
PAFACAB	Rough pigweed
PBKAHBA	Shepherdspurse
PEAAGAD	Smartweed
PAFACBE	Smooth pigweed
PAFACBJ	Spiny amaranth
PBVAGBK	Spotted spurge
PAFACBA	Tumble pigweed
PDAABBB	Velvetleaf
1 ABBC	Whitestem filaree
PBKAFBE	Wild mustard

GRASSES AND OTHER MONOCOTS CONTROLLED:

PCACKBA	Annual bluegrass
PCABHBB	Barnyardgrass
PCACEBE	Browntop panicum
PCAAUBA	Buffalograss
PCABFAA	Crabgrass
PCABCBA	Crowfootgrass
PCABLAA	Cupgrass
PCACEBD	Fall panicum
PCAAWBB	Field sandbur
PCACUAA	Foxtail
PCACUBA	Giant foxtail
PCABIBA	Goosegrass
PCACUBF	Green foxtail
PCABZBA	Italian ryegrass
PCACWBG	Johnsongrass (seedling)
PCABHBA	Junglerice
PCABFBF	Large crabgrass
PCABSBF	Little barley
PCABKBE	Mexican lovegrass
ABKBK	Orcutt lovegrass
ABYBB	Red sprangletop
PCACCBA	Rice
PCACUAC	Robust foxtail
PCAARAA	Signalgrass
PCABFBD	Smooth crabgrass
PCABLBA	Southwestern cupgrass
PCACEBL	Texas panicum
PCADFBA	Wheat (volunteer)
PCAAOBB	Wild oat
PAAAABC	Wiregrass
PCACEBC	Witchgrass
PCACUBD	Yellow foxtail

TERRESTRIAL FOOD CROP

(Agricultural Crops)

/03001AA Almond

Pests (see above)

(75% WP)
001471-00096

(2 lb/gal EC)
001471-00105

Listing by Site/Pest and Site/Form/Reg. No. (continued)

Almond (continued)

(4 lb/gal FlC)
001471-00112

/04001AA Apple
Pests (see above)
(75% WP)
001471-00096

(2 lb/gal EC)
001471-00105

(4 lb/gal FlC)
001471-00112

/04001DA Apple (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/05001AA Apricot
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/06001AA Avocado
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/04003DA Bartlett Pear (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

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Appendix B

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/01002AA **Blackberry**
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/01009AA **Blueberry**
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/01003AA **Boysenberry**
Pests (see above)
(4 lb/gal FlC)
001471-00112

/05002DA **Cherry (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/05002AA **Cherry (Sour, Sweet)**
Pests (see above)
(75% WP)
001471-00096

(2 lb/gal EC)
001471-00105

(4 lb/gal FlC)
001471-00112

/28007AA **Cotton**
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/01011AA Currant
Pests (see above)
(4 lb/gal FlC)
001471-00112

/01004AA Dewberry
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/01012AA Elderberry
Pests (see above)
(4 lb/gal FlC)
001471-00112

/03009AA English Walnut
Pests (see above)
(75% WP)
001471-00096

(2 lb/gal EC)
001471-00105

(4 lb/gal FlC)
001471-00112

/06005AA Fig
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/03005AA Filbert
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/01013AA Gooseberry
Pests (see above)
(4 lb/gal FlC)
001471-00112

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/01014AA Grapes
Pests (see above)
(75% WP)
001471-00096

(2 lb/gal EC)
001471-00105

(4 lb/gal FlC)
001471-00112

/02002AA Grapefruit
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/06018AA Kiwi Fruit
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/02004AA Lemon
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/01005AA Loganberry
Pests (see above)
(4 lb/gal FlC)
001471-00112

/03007AA Macadamia Nut
Pests (see above)
(4 lb/gal FlC)
001471-00112

/28012AA Mint (Peppermint, Spearmint)
Pests (see above)
(75% WP)
001471-00096

Listing by Site/Pest and Site/Form/Reg. No. (continued)

Mint (Peppermint, Spearmint) (continued)

(4 lb/gal FlC)
001471-00112

/05003AA **Nectarine**
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/06009AA **Olive**
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/02006AA **Orange**
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/05004AA **Peach**
Pests (see above)
(75% WP)
001471-00096

(2 lb/gal EC)
001471-00105

(4 lb/gal FlC)
001471-00112

/04003AA **Pear**
Pests (see above)
(75% WP)
001471-00096

(2 lb/gal EC)
001471-00105

Listing by Site/Pest and Site/Form/Reg. No. (continued)

Pear (continued)

(4 lb/gal FlC)
001471-00112

/28016AA Peas (English, Green)
Pests (see above)
(4 lb/gal FlC)
001471-00112

/03008AA Pecan
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

/03011AA Pistachio
Pests (see above)
(75% WP)
001471-00096

(2 lb/gal EC)
001471-00105

(4 lb/gal FlC)
001471-00112

/05005AA Plum
Pests (see above)
(75% WP)
001471-00096

(2 lb/gal EC)
001471-00105

(4 lb/gal FlC)
001471-00112

/06015AA Pomegranate
Pests (see above)
(75% WP)
001471-00096

(4 lb/gal FlC)
001471-00112

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Appendix B

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/14013AA **Potato (White)**
  Pests (see above)
  (75% WP)
    001471-00096

  (4 lb/gal FlC)
    001471-00112

/05006AA **Prune**
  Pests (see above)
  (75% WP)
    001471-00096

  (2 lb/gal EC)
    001471-00105

  (4 lb/gal FlC)
    001471-00112

/01006AA **Raspberry**
  Pests (see above)
  (75% WP)
    001471-00096

  (4 lb/gal FlC)
    001471-00112

/28023AA **Soybeans**
  Pests (see above)
  (75% WP)
    001471-00096

  (1.5 lb/gal EC)
    001471-00137

  (2 lb/gal EC)
    001471-00105

  (4 lb/gal FlC)
    001471-00112

Listing by Site/Pest and Site/Form/Reg. No. (continued)

TERRESTRIAL NON-FOOD CROP

(Agricultural Crops)

/26005AA Tobacco, Air Cured (Burley, Maryland, Dark)
  Pests (see above)
  (4 lb/gal FlC)
  001471-00112

/26006AA Tobacco, Flue Cured
  Pests (see above)
  (4 lb/gal FlC)
  001471-00112

GREENHOUSE NON-FOOD CROP

(Ornamental Plants and Forest Trees)

/40005CA Greenhouse Benches
  Pests (see above)
  (75% WP)
  001471-00102

  (4 lb/gal FlC)
  001471-00113

TERRESTRIAL NON-FOOD CROP

(Ornamental Plants and Forest Trees)

/31303AA African Trailing Daisy
  Pests (see above)
  (75% WP)
  001471-00102

  (4 lb/gal FlC)
  001471-00113

/34427AA Akeake
  Pests (see above)
  (75% WP)
  001471-00102

  (4 lb/gal FlC)
  001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34148AA **Algerian Ivy**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35288AA **American Holly (Howard)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35288DA **American Holly (Howard) (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34487AA **Amur Privet**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34487DA **Amur Privet (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35315AA **Andorra Juniper**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34543AA **Argentine Trumpetvine**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34543DA **Argentine Trumpetvine (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34297AA **Azalea (Gable Hybrids)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34297DA **Azalea (Gable Hybrids) (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34545AA **Azalea (Louisa)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34545DA **Azalea (Louisa) (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/31034AA **Begonia**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal F1C)
    001471-00113

/33086AA **Big Blue Lilyturf (Ground Cover)**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal F1C)
    001471-00113

/33086DA **Big Blue Lilyturf (Ground Cover) (nursery stock)**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal F1C)
    001471-00113

/34451AA **Bigleaf Wintercreeper**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal F1C)
    001471-00113

/34451DA **Bigleaf Wintercreeper (nursery stock)**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal F1C)
    001471-00113

/31038AA **Bird-of-Paradise**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal F1C)
    001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/35033AA **Blue Spruce**
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/35033DA **Blue Spruce (nursery stock)**
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/34346AA **Border Forsythia**
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/34031AA **Boxwood**
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/34031DA **Boxwood (nursery stock)**
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/34421AA **Bright Bead Cotoneaster**
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/35378AA Brush Cherry
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35378DA Brush Cherry (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35386AA California-Laurel
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35385AA Canary Pine
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35385DA Canary Pine (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34157AA Cape-Jasmine
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34157DA Cape-Jasmine (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35384AA Carolina Cherry-Laurel
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34158AA Ceanothus
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34158DA Ceanothus (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34040AA Cherry Laurel
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34417AA Chinese Firethorn
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34417DA **Chinese Firethorn (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34160AA **Chinese Hibiscus**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34161AA **Chinese Holly**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34161DA **Chinese Holly (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35155AA **Chinese Juniper**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35155DA **Chinese Juniper (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34419AA Chinese Star-Jasmine
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/34486AA Coast Leucothoe
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/34486DA Coast Leucothoe (nursery stock)
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/31493AA Common Geranium
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/31496AA Common Zinnia
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/34305AA Convex Leaf Holly
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34305DA Convex Leaf Holly (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34560AA Cotoneaster Parneyi
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34560DA Cotoneaster Parneyi (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34244AA Cranberry Cotoneaster
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34244DA Cranberry Cotoneaster (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34046AA Crape Myrtle
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34046DA Crape Myrtle (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35160AA Creeping Juniper
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35160DA Creeping Juniper (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35236AA Cryptomeria
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35236DA Cryptomeria (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/33130AA Dwarf Coyotebrush
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/31237AA **Easter Cactus**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/31237DA **Easter Cactus (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35047AA **Eastern Redcedar**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35047DA **Eastern Redcedar (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35048AA **Eastern White Pine**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35237AA **Ellwood False Cypress**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/35237DA Ellwood False Cypress (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34323AA Emerald Cushion Euonymus
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34323DA Emerald Cushion Euonymus (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35169AA English Holly
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34052AA English Ivy
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34561AA Escallonia (Frades)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34561DA Escallonia (Frades) (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35297AA Eucalyptus cinerea
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34233AA Evergreen Euonymus
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34233DA Evergreen Euonymus (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34172AA Fatshedera
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34172DA Fatshedera (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34056AA Fetter-Bush
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34056DA Fetter-Bush (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34237AA Floribunda Rose
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34237DA Floribunda Rose (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/31491AA Florists' Chrysanthemum
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34176AA Formosan Pyracantha
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34176DA Formosan Pyracantha (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34518AA Fraser Photinia
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34518DA Fraser Photinia (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/31239AA French Marigold
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/31494AA Garden Petunia
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35062AA Ginkgo
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35062DA Ginkgo (nursery stock)
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34422AA Glossy Abelia
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34179AA Glossy Privet
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34179DA Glossy Privet (nursery stock)
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/35063AA Golden-Rain Tree
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/33104AA Greater Periwinkle (Ground Cover)
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/35403AA Greek Juniper
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35403DA Greek Juniper (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34331AA Greek Myrtle
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34331DA Greek Myrtle (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34313AA Hiryu Azalea (Hinodegiri)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34313DA Hiryu Azalea (Hinodegiri) (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34071AA **Holly Osmanthus**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34238AA **Hybrid Tea Roses**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34238DA **Hybrid Tea Roses (nursery stock)**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34075AA **India Hawthorn**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34075DA **India Hawthorn (nursery stock)**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/35340AA **Interior Live Oak**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/35340DA Interior Live Oak (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35182AA Italian Cypress
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35182DA Italian Cypress (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34078AA Japanese Andromeda
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34078DA Japanese Andromeda (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34079AA Japanese Barberry
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34079DA Japanese Barberry (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35185AA Japanese Black Pine
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35185DA Japanese Black Pine (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34272AA Japanese Boxwood
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34272DA Japanese Boxwood (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/33119AA Japanese Garden Juniper (Ground Cover)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/33119DA Japanese Garden Juniper (Ground Cover) (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34307AA Japanese Honeysuckle
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34310AA Japanese Pittosporum
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34310DA Japanese Pittosporum (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34188AA Japanese Privet
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34188DA Japanese Privet (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35072AA **Japanese Yew**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/33107AA **Largeleaf Iceplant (ground cover)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34285AA **Laurustinus**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34285DA **Laurustinus (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34414AA **Lemon Bottlebrush**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34414DA **Lemon Bottlebrush (nursery stock)**
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/33103AA	Lesser Periwinkle (Ground Cover) Pests (see above) (75% WP) 001471-00102 (4 lb/gal FlC) 001471-00113
/34089AA	Lilac Pests (see above) (75% WP) 001471-00102 (4 lb/gal FlC) 001471-00113
/34089DA	Lilac (nursery stock) Pests (see above) (75% WP) 001471-00102 (4 lb/gal FlC) 001471-00113
/31411AA	Lily-of-the-Nile Pests (see above) (75% WP) 001471-00102 (4 lb/gal FlC) 001471-00113
/31411DA	Lily-of-the-Nile (nursery stock) Pests (see above) (75% WP) 001471-00102 (4 lb/gal FlC) 001471-00113
/34504AA	Lowfast Bearberry Cotoneaster Pests (see above) (75% WP) 001471-00102 (4 lb/gal FlC) 001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34504DA Lowfast Bearberry Cotoneaster (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34091AA Manzanita
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34097AA Mountain-Laurel
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35289AA Myoporum
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34100AA Nandina
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34100DA Nandina (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/35328AA Narrow Leaved Black Peppermint
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35328DA Narrow Leaved Black Peppermint (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34562AA Old-fashioned Weigela
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34102AA Oleander
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34102DA Oleander (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34103AA Oregongrape
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/35254AA Oriental Arborvitae
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35254DA Oriental Arborvitae (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/31149AA Pansies
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/33117AA Purpleleaf Wintercreeper
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/33117DA Purpleleaf Wintercreeper (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34353AA Pyrenees Cotoneaster
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/35380AA

Red Ironbark Eucalyptus
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34492AA

Rhododendron (PJM Hybrids)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34492DA

Rhododendron (PJM Hybrids) (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34555AA

Rhododendron (Ponticum hybrids)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34555DA

Rhododendron (Ponticum Hybrids) (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34493AA

Rhododendron (Rosebud)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34493DA Rhododendron (Rosebud) (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34205AA Rockspray Cotoneaster
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/34205DA Rockspray Cotoneaster (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35354AA Rocky Mountain Juniper
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35354DA Rocky Mountain Juniper (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35491AA Rocky Mountain Sugar Maple
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/35491DA **Rocky Mountain Sugar Maple (nursery stock)**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34120AA **Rose**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34208AA **Sakaki**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34208DA **Sakaki (nursery stock)**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34122AA **Sandankwa Viburnum**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/35205AA **Savin Juniper**
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/35205DA Savin Juniper (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34295AA Scarlet Firethorn
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34295DA Scarlet Firethorn (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34420AA Shiny Xylosoma
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35209AA Shore Juniper
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35209DA Shore Juniper (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/31420AA Shortleaf Stonecrop
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/31408AA Shrimp Plant
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/31408DA Shrimp Plant (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35388AA Soap Tree
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35388DA Soap Tree (nursery stock)
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/35216AA Southern Magnolia
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/33126AA St. John's-Wort (Ground Cover)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35118AA Sweetgum
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35118DA Sweetgum (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35393AA Swiss Mountain Pine
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35393DA Swiss Mountain Pine (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/31455AA Treasure Flower
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/34309AA Vicary Golden Privet
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/34309DA Vicary Golden Privet (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35123AA Western Redcedar
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35123DA Western Redcedar (nursery stock)
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/31996AA White Iceplant
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/35137AA Wilson Chinese Juniper
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/35137DA Wilson Chinese Juniper (nursery stock)
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34232AA Winged Euonymus
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34388AA Yaupon
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/34388DA Yaupon (nursery stock)
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/35253AA Yew Podocarpus
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

/35253DA Yew Podocarpus (nursery stock)
  Pests (see above)
 (75% WP)
  001471-00102

 (4 lb/gal FlC)
  001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/31492AA Zanzibar Balsam
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

(Noncrop, Wide Area, and General Outdoor Treatments)

/670040A Highway Rights-of-Way
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/670060A Utility Rights-of-Way
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

FORESTRY

/30153AA Alpine Fir
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/30084AA Austrian Pine
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/30128AA Balsam Fir
  Pests (see above)
  (75% WP)
    001471-00102

Listing by Site/Pest and Site/Form/Reg. No. (continued)

Balsam Fir (continued)

(4 lb/gal FlC)
001471-00113

/30111AA Bishop Pine
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/30107AA Black Spruce
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/30141AA Blue Spruce
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/30005AA Christmas Tree Plantations
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

/30152AA Coulter Pine
Pests (see above)
(75% WP)
001471-00102

(4 lb/gal FlC)
001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/30039AA Douglas-Fir
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/30100AA Eastern White Pine
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/30093AA Englemann Spruce
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/30129AA Fraser Fir
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/30090AA Grand Fir
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

/30112AA Monterey Pine
  Pests (see above)
(75% WP)
  001471-00102

(4 lb/gal FlC)
  001471-00113

Listing by Site/Pest and Site/Form/Reg. No. (continued)

/30130AA **Norway Spruce**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/30062AA **Redwood**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/30113AA **Scotch Pine**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/30154AA **Veitch Fir**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/30092AA **White Fir**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

/30108AA **White Spruce**
  Pests (see above)
  (75% WP)
    001471-00102

  (4 lb/gal FlC)
    001471-00113

APPENDIX B

LABELING REQUIREMENTS

B-1 - Submission of Revised Labeling

B-2 - 40 CFR 162.10 Labeling Requirements

B-3 - Table of Labeling Requirements

B-4 - Physical/Chemical Hazards
Labeling Statement

SUBMISSION OF REVISED LABELING

FIFRA requires each product to be labeled with accurate, complete and sufficient instructions and precautions, reflecting the results of data concerning the product and its ingredients. Labeling requirements are set out in 40 CFR 162.10 (Appendix B-2) and are summarized for products containing this active ingredient in Appendix B-3. Applications submitted in response to this Standard must include draft labeling for Agency review.

If revised labeling information complying with this Appendix and the requirements described in Part II of the Standard, is not submitted, EPA may issue a notice of intent to cancel the registration under FIFRA sec. 6(b)(1).

A. LABEL CONTENTS. 40 CFR 162.10 requires that certain specific labeling statements appear at certain locations on the label. This is referred to as format labeling. Specific label items listed below are keyed to Appendix B-3.

Item 1. PRODUCT NAME - The name, brand or trademark is required to be located on the front panel, preferably centered in the upper part of the panel. The name of a product will not be accepted if it is false or misleading.

Item 2. COMPANY NAME AND ADDRESS - The name and address of the registrant or distributor is required on the label. The name and address should be located at the bottom of the front panel or at the end of the label text.

Item 3. NET CONTENTS - A net contents statement is required on all labels or on the container of the pesticide. The preferred location is the bottom of the front panel immediately above the company name and address, or at the end of the label text. The net contents must be expressed in the largest suitable unit, e.g., "1 pound, 10 ounces" rather than "26 ounces." In addition to English units, net contents may be expressed in metric units. [40 CFR 162.10(d)]

Item 4. EPA REGISTRATION NUMBER - The registration number assigned to the pesticide product must appear on the label, preceded by the phrase "EPA Registration No.," or "EPA Reg. No." The registration number must be set in type of a size and style similar to other print on that part of the label on which it appears and must run parallel to it. The registration number and the required identifying phrase must not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency. [40 CFR 162.10(e)]

Item 5. EPA ESTABLISHMENT NUMBER - The EPA establishment number, preceded by the phrase "EPA Est." is the final establishment at which the product was produced, and may appear in any suitable location on the label or immediate container. It must also appear on the wrapper or outside container of the package if the EPA establishment number on the immediate container cannot be clearly read through such wrapper or container. [40 CFR 162.10(f)]

Item 6A. INGREDIENTS STATEMENT - An ingredients statement is required on the front panel. The ingredients statement must contain the name and percentage by weight of each active ingredient and the total percentage by weight of all inert ingredients. The preferred location is immediately below the product name. The ingredients statement must run parallel with, and be clearly distinguished from, other text on the panel. It must not be placed in the body of other text. [40 CFR 162.10(g)]

Item 6B. POUNDS PER GALLON STATEMENT - For liquid agricultural formulations, the pounds per gallon of active ingredient must be indicated on the label.

Item 7. FRONT LABEL PRECAUTIONARY STATEMENTS - Front panel precautionary statements must be grouped together, preferably within a block outline. The table below shows the minimum type size requirements for various size labels.

Size of Label on Front Panel in Square Inches	Signal Word Minimum Type Size All Capitals	"Keep Out of Reach of Children" Minimum Type Size
5 and under	6 point	6 point
above 5 to 10	10 point	6 point
above 10 to 15	12 point	8 point
above 15 to 30	14 point	10 point
over 30	18 point	12 point

Item 7A. CHILD HAZARD WARNING STATEMENT - The statement "Keep Out of Reach of Children" must be located on the front panel above the signal word except where contact with children during distribution or use is unlikely. [40 CFR 162.10(h)(1)(ii)]

Item 7B. SIGNAL WORD - The signal word (DANGER, WARNING, or CAUTION) is required on the front panel immediately below the child hazard warning statement. [40 CFR 162.10 (h)(1)(i)]

Item 7C. SKULL & CROSSBONES AND WORD "POISON" - For products assigned a toxicity Category I on the basis of oral, dermal, or inhalation toxicity, the word "POISON" shall appear on the label in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word "POISON." [40 CFR 162.10(h)(1)(i)]

Item 7D. STATEMENT OF PRACTICAL TREATMENT - A statement of practical treatment (first aid or other) shall appear on the label of pesticide products in toxicity Categories I, II, and III. [40 CFR 162.10(h)(1)(iii)]

Item 7E. REFERRAL STATEMENT - The statement "See Side (or Back) Panel for Additional Precautionary Statements" is required on the front panel for all products, unless all required precautionary statements appear on the front panel. [40 CFR 162.10(h)(1)(iii)]

Item 8. SIDE/BACK PANEL PRECAUTIONARY LABELING - The precautionary statements listed below must appear together on the label under the heading "PRECAUTIONARY STATEMENTS." The preferred location is at the top of the side or back panel preceding the directions for use, and it is preferred that these statements be surrounded by a block outline. Each of the three hazard warning statements must be headed by the appropriate hazard title. [40 CFR 162.10 (h)(2)]

Item 8A. HAZARD TO HUMANS AND DOMESTIC ANIMALS - Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. [40 CFR 162.10 (h)(2)(i)]

Item 8B. ENVIRONMENTAL HAZARD - Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury, or damage. [40 CFR 162.10(h)(2)(ii)]

Item 8C. PHYSICAL OR CHEMICAL HAZARD -

1. Flammability statement. Precautionary statements relating to flammability of a product are required to appear on the label if it meets the criteria in Appendix B-4. The requirement is based on the results of the flashpoint determinations and flame extension tests required to be submitted for all products. These statements are to be located in the side/back panel precautionary statements section, preceded by the heading "Physical/Chemical Hazards." Note that no signal word is used in conjunction with the flammability statements.

2. Criteria for declaration of non-flammability. The following criteria will be used to determine if a product is non-flammable:

   a. A "non-flammable gas" is a gas (or mixture of gases) that will not ignite when a lighted match is placed against the open cylinder valve.

b. A "non-flammable liquid" is one having a flashpoint greater than 350°F (177°C).

c. A "non-flammable aerosol" is one which meets the following criteria:

   i. The flame extension is zero inches;

   ii. There is no flashback; and

   iii. The flashpoint of the non-volatile liquid component is greater than 350°F (177°C).

3. Declaration of non-flammability. Products which meet the criteria for non-flammability specified above may bear the notation "non-flammable" or "non-flammable (gas, liquid, etc.)" on the label. It may appear as a substatement to the ingredients statement, or on a back or side panel, but shall not be highlighted or emphasized (as with an inordinately large type size) in any way that may detract from precaution.

4. Other physical/chemical hazard statements. When chemistry data demonstrate hazards of a physical or chemical nature other than flammability, appropriate statements of hazard will be prescribed. Such statements may address hazards of explosivity, oxidizing or reducing capability, or mixing with other substances to produce toxic fumes.

Item 9A. RESTRICTED USE CLASSIFICATION - FIFRA sec. 3(d) provides for the classification of products for restricted use. Such use may be limited to certified applicators or persons under their direct supervision or may be subject to other restrictions that may be imposed by regulation. Based on its review of oryzalin, the Agency has not classified products containing this active ingredient for restricted use.

Item 9B - There is no Item 9B.

Item 9C. MISUSE STATEMENT - All products must bear the misuse statement, "It is a violation of Federal law to use this product in a manner inconsistent with its labeling." This statement appears at the beginning of the directions for use, directly beneath the heading of that section.

Item 10A. REENTRY STATEMENT - A reentry interval has not been established by the Agency for this chemical.

Item 10B - There is no Item 10B.

Item 10C. STORAGE AND DISPOSAL BLOCK - All labels are required to bear storage and disposal statements. These statements are developed for specific containers, sizes, and chemical content. These instructions must be grouped and appear under the heading "Storage and Disposal" in the directions for use. This heading must be set in the same type sizes as required for the child hazard warning. Part II of the Standard contains the specific disposal statement for oryzalin and Appendix C sets forth the appropriate container disposal statements.

Item 10D. DIRECTIONS FOR USE - Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment. [40 CFR 162.10]

B. COLLATERAL LABELING. Bulletins, leaflets, circulars, brochures, data sheets, flyers, or other written or graphic printed matter which is referred to on the label or which is to accompany the product are termed collateral labeling. Such labeling may not bear claims or representations that differ in substance from those accepted in connection with registration of the product. It should be made part of the response to this Standard and submitted for review.

Chapter 1--Environmental Protection Agency

§162.10 Labeling requirements.

(a) General--(1) Contents of the label. Every pesticide product shall bear a label containing the information specified by the Act and the regulations in this Part. The contents of a label must show clearly and prominently the following:

(i) The name, brand, or trademark under which the product is sold as prescribed in paragraph (b) of this section;

(ii) The name and address of the producer, registrant, or person for whom produced as prescribed in paragraph (c) of this section;

(iii) The net contents as prescribed in paragraph (d) of this section;

(iv) The product registration number as prescribed in paragraph (e) of this section;

(v) The producing establishment number as prescribed in paragraph (f) of this section;

(vi) An ingredient statement as prescribed in paragraph (g) of this section;

(vii) Warning or precautionary statements as prescribed in paragraph (h) of this section;

(viii) The directions for use as prescribed in paragraph (i) of this section; and

(ix) The use classification(s) as prescribed in paragraph (j) of this section.

(2) Prominence and legibility. (i) All words, statements, graphic representations, designs or other information required on the labeling by the Act or the regulations in this part must be clearly legible to a person with normal vision, and must be placed with such conspicuousness (as compared with other words, statements, designs, or graphic matter on the labeling) and expressed in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use.

(ii) All required label text must:

(A) Be set in 6-point or larger type;

(B) Appear on a clear contrasting background; and

(C) Not be obscured or crowded.

(3) Language to be used. All required label or labeling text shall appear in the English language. However, the Agency may require or the applicant may propose additional text in other languages as is considered necessary to protect the public. When additional text in another language is necessary, all labeling requirements will be applied equally to both the English and other-language versions of the labeling.

(4) Placement of Label--(i) General. The label shall appear on or be securely attached to the immediate container of the

pesticide product. For purposes of this Section, and the misbranding provisions of the Act, "securely attached" shall mean that a label can reasonably be expected to remain affixed during the foreseeable conditions and period of use. If the immediate container is enclosed within a wrapper or outside container through which the label cannot be clearly read, the label must also be securely attached to such outside wrapper or container, if it is a part of the package as customarily distributed or sold.

(ii) Tank cars and other bulk containers--(A) Transportation. While a pesticide product is in transit, the appropriate provisions of 49 CFR Parts 170-189, concerning the transportation of hazardous materials, and specifically those provisions concerning the labeling, marking and placarding of hazardous materials and the vehicles carrying them, define the basic Federal requirements. In addition, when any registered pesticide product is transported in a tank car, tank truck or other mobile or portable bulk container, a copy of the accepted label must be attached to the shipping papers, and left with the consignee at the time of delivery.

(B) Storage. When pesticide products are stored in bulk containers, whether mobile or stationary, which remain in the custody of the user, a copy of the label of labeling, including all appropriate directions for use, shall be securely attached to the container in the immediate vicinity of the discharge control valve.

(5) False or misleading statements. Pursuant to section 2(q)(1)(A) of the Act, a pesticide or a device declared subject to the Act pursuant to § 162.15, is misbranded if its labeling is false or misleading in any particular including both pesticidal and non-pesticidal claims. Examples of statements or representations in the labeling which constitute misbranding include:

(i) A false or misleading statement concerning the composition of the product;

(ii) A false or misleading statement concerning the effectiveness of the product as a pesticide or device;

(iii) A false or misleading statement about the value of the product for purposes other than as a pesticide or device;

(iv) A false or misleading comparison with other pesticides or devices;

(v) Any statement directly or indirectly implying that the pesticide or device is recommended or endorsed by any agency of the Federal Government;

(vi) The name of a pesticide which contains two or more principal active ingredients if the name suggests one or more but not all such principal active ingredients even though the names of the other ingredients are stated elsewhere in the labeling;

(vii) A true statement used in such a way as to give a false or misleading impression to the purchaser;

(viii) Label disclaimers which negate or detract from labeling statements required under the Act and these regulations;

(ix) Claims as to the safety of the pesticide or its ingredients, including statements such as "safe," "nonpoisonous," "noninjurious," "harmless" or "nontoxic to humans and pets" with or without such a qualifying phrase as "when used as directed"; and

(x) Non-numerical and/or comparative statements on the safety of the product, including but not limited to:

(A) "Contains all natural ingredients";

(B) "Among the least toxic chemicals known"

(C) "Pollution approved"

(6) Final printed labeling. (i) Except as provided in paragraph (a)(6)(ii) of this section, final printed labeling must be submitted and accepted prior to registration. However, final printed labeling need not be submitted until draft label texts have been provisionally accepted by the Agency.

(ii) Clearly legible reproductions or photo reductions will be accepted for unusual labels such as those silk-screened directly onto glass or metal containers or large bag or drum labels. Such reproductions must be of microfilm reproduction quality.

(b) Name, brand, or trademark. (1) The name, brand, or trademark under which the pesticide product is sold shall appear on the front panel of the label.

(2) No name, brand, or trademark may appear on the label which:

(i) Is false or misleading, or

(ii) Has not been approved by the Administrator through registration or supplemental registration as an additional name pursuant to § 162.6(b)(4).

(c) Name and address of producer, registrant, or person for whom produced. An unqualified name and address given on the label shall be considered as the name and address of the producer. If the registrant's name appears on the label and the registrant is not the producer, or if the name of the person for whom the pesticide was produced appears on the label, it must be qualified by appropriate wording such as "Packed for ***," "Distributed by ***," or "Sold by ***" to show that the name is not that of the producer.

(d) Net weight or measure of contents. (1) The net weight or measure of content shall be exclusive of wrappers or other materials and shall be the average content unless explicitly stated as a minimum quantity.

(2) If the pesticide is a liquid, the net content statement shall be in terms of liquid measure at 68°F (20°C) and shall be expressed in conventional American units of fluid ounces, pints, quarts, and gallons.

(3) If the pesticide is solid or semisolid, viscous or pressurized, or is a mixture of liquid and solid, the net content statement shall be in terms of weight expressed as avoirdupois pounds and ounces.

(4) In all cases, net content shall be stated in terms of the largest suitable units, i.e., "1 pound 10 ounces" rather than "26 ounces."

(5) In addition to the required units specified, net content may be expressed in metric units.

(6) Variation above minimum content or around an average is permissible only to the extent that it represents deviation unavoidable in good manufacturing practice. Variation below a stated minimum is not permitted. In no case shall the average content of the packages in a shipment fall below the stated average content.

(e) Product registration number. The registration number assigned to the pesticide product at the time of registration shall appear on the label, preceded by the phrase "EPA Registration No.," or the phrase "EPA Reg. No." The registration number shall be set in type of a size and style similar to other print on that part of the label on which it appears and shall run parallel to it. The registration number and the required identifying phrase shall not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency.

(f) Producing establishments registration number. The producing establishment registration number preceded by the phrase "EPA Est.", of the final establishment at which the product was produced may appear in any suitable location on the label or immediate container. It must appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container.

(g) Ingredient statement--(1) General. The label of each pesticide product must bear a statement which contains the name and percentage by weight of each active ingredient, the total percentage by weight of all inert ingredients; and if the pesticide contains arsenic in any form, a statement of the percentages of total and water-soluble arsenic calculated as elemental arsenic. The active ingredients must be designated by the term "active ingredients" and the inert ingredients by the term "inert ingredients," or the singular forms of these terms when appropriate. Both terms shall be in the same type size, be aligned to the same margin and be equally prominent. The statement "Inert Ingredients, none" is not required for pesticides which contain 100 percent active ingredients. Unless the ingredient statement is a complete analysis of the pesticide, the term "analysis" shall not be used as a heading for the ingredient statement.

(2) Position of ingredient statement. (i) The ingredient statement is normally required on the front panel of the label. If there is an outside container or wrapper through which the ingredient statement cannot be clearly read, the ingredient statement must also appear on such outside container or wrapper. If the size or form of the package makes it impracticable to place the ingredient statement on the front panel of the label, permission may be granted for the ingredient statement to appear elsewhere.

(ii) The text of the ingredient statement must run parallel with other text on the panel on which it appears, and must be clearly distinguishable from and must not be placed in the body of other text.

(3) Names to be used in ingredient statement. The name used for each ingredient shall be the accepted common name, if there is one, followed by the chemical name. The common name may be used alone only if it is well known. If no common name has been established, the chemical name alone shall be used. In no case will the use of a trademark or proprietary name be permitted unless such name has been accepted as a common name by the Administrator under the authority of Section 25(c)(6).

(4) Statements of percentages. The percentages of ingredients shall be stated in terms of weight-to-weight. The sum of percentages of the active and the inert ingredients shall be 100. Percentages shall not be expressed by a range of values such as "22-25%." If the uses of the pesticide product are expressed as weight of active ingredient per unit area, a statement of the weight of active ingredient per unit volume of the pesticide formulation shall also appear in the ingredient statement.

(5) Accuracy of stated percentages. The percentages given shall be as precise as possible reflecting good manufacturing practice. If there may be unavoidable variation between manufacturing batches, the value stated for each active ingredient shall be the lowest percentage which may be present.

(6) Deterioration. Pesticides which change in chemical composition significantly must meet the following labeling requirements:

(i) In cases where it is determined that a pesticide formulation changes chemical composition significantly, the product must bear the following statement in a prominent position on the label: "Not for sale or use after [date]."

(ii) The product must meet all label claims up to the expiration time indicated on the label.

(7) Inert ingredients. The Administrator may require the name of any inert ingredient(s) to be listed in the ingredient statement if he determines that such ingredient(s) may pose a hazard to man or the environment.

(h) Warnings and precautionary statements. Required warnings and precautionary statements concerning the general areas of toxicological hazard including hazard to children, environmental hazard, and physical or chemical hazard fall into two groups; those required on the front panel of the labeling and those which may appear elsewhere. Specific requirements concerning content, placement, type size, and prominence are given below.

(1) Required front panel statements. With the exception of the child hazard warning statement, the text required on the front panel of the label is determined by the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown by any of the indicators in the table below:

Hazard indicators	Toxicity categories			
	I	II	III	IV
Oral LD_{50}	Up to and including 50 mg/kg	From 50 thru 500 mg/kg	From 500 thru 5000 mg/kg	Greater than 5000 mg/kg
Inhalation LC_{50}	Up to and including .2 mg/liter	From .2 thru 2 mg/liter	From 2 thru 20 mg/liter	Greater than 20 mg/liter
Dermal LD_{50}	Up to and including 200 mg/kg	From 200 thru 2000	From 2,000 thru 20,000	Greater than 20,000
Eye effects	Corrosive; corneal opacity not reversible within 7 days	Corneal opacity reversible within 7 days; irritation persisting for 7 days	No corneal opacity; irritation reversible within 7 days	No irritation
Skin effects	Corrosive	Severe irritation at 72 hours	Moderate irritation at 72 hours	Mild or slight irritation at 72 hours

(i) Human hazard signal word.--(A) Toxicity Category I. All pesticide products meeting the criteria of Toxicity Category I shall bear on the front panel the signal word "Danger." In addition if the product was assigned to Toxicity Category I on the basis of its oral, inhalation or dermal toxicity (as distinct from skin and eye local effects) the word "Poison" shall appear in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word "poison."

(B) Toxicity Category II. All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word "Warning."

(C) Toxicity Category III. All pesticide products meeting the criteria of Toxicity Category III shall bear on the front panel the signal word "Caution."

(D) Toxicity Category IV. All pesticide products meeting the criteria of Toxicity Category IV shall bear on the front panel the signal word "Caution."

(E) Use of signal words. Use of any signal word(s) associated with a higher Toxicity Category is not permitted except when the Agency determines that such labeling is necessary to prevent unreasonable adverse effects on man or the environment. In no case shall more than one human hazard signal word appear on the front panel of a label.

(ii) Child hazard warning. Every pesticide product label shall bear on the front panel the statement "keep out of reach of children." Only in cases where the likelihood of contact with children during distribution, marketing, storage or use is demonstrated by the applicant to be extremely remote, or if the nature of the pesticide is such that it is approved for use on infants or small children, may the Administrator waive this requirement.

(iii) Statement of practical treatment--(A) Toxicity Category I. A statement of practical treatment (first aid or other) shall appear on the front panel of the label of all pesticides falling into Toxicity Category I on the basis of oral, inhalation or dermal toxicity. The Agency may, however, permit reasonable variations in the placement of the statement of practical treatment is some reference such as "See statement of practical treatment on back panel" appears on the front panel near the word "Poison" and the skull and crossbones.

(B) Other toxicity categories. The statement of practical treatment is not required on the front panel except as described in paragraph (h)(1)(iii)(A) of this section. The applicant may, however, include such a front panel statement at his option. Statements of practical treatment are, however, required elsewhere on the label in accord with paragraph (h)(2) of this section if they do not appear on the front panel.

(iv) Placement and prominence. All the required front panel warning statements shall be grouped together on the label, and shall appear with sufficient prominence relative to other front panel text and graphic material to make them unlikely to be overlooked under customary conditions of purchase and use. The following table shows the minimum type size requirements for the front panel warning statements on various sizes of labels:

Size of label front panel in square inches	Points	
	Required signal word, all capitals	"Keep out of reach of Children"
5 and under	6	6
Above 5 to 10	10	6
Above 10 to 15	12	8
Above 15 to 30	14	10
Over 30	18	12

(2) Other required warnings and precautionary statements. The warnings and precautionary statements as required below shall appear together on the label under the general heading "Precautionary Statements" and under appropriate subheadings of "Hazard to Humans and Domestic Animals," "Environmental Hazard" and "Physical or Chemical Hazard."

(i) Hazard to humans and domestic animals. (A) Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. The precautionary paragraph shall be immediately preceded by the appropriate hazard signal word.

(B) The following table depicts typical precautionary statements. These statements must be modified or expanded to reflect specific hazards.

Toxicity category	Precautionary statements by toxicity category	
	Oral, inhalation, or dermal toxicity	Skin and eye local effects
I . . .	Fatal (poisonous) if swallowed [inhaled or absorbed through skin]. Do not breathe vapor [dust] or spray mist]. Do not get in eyes, on skin, or on clothing [Front panel statement of practical treatment required.].	Corrosive, causes eye and skin damage [or skin irritation]. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. [Appropriate first aid statement required.]
II . . .	May be fatal if swallowed [inhaled or absorbed through the skin]. Do not breathe vapors [dust or spray mist]. Do not get in eyes, on skin, or on clothing. [Appropriate first aid statements required.].	Causes eye [and skin] irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. [Appropriate first aid statement required.].
III . . .	Harmful if swallowed [inhaled or absorbed through the skin]. Avoid breathing vapors [dust or spray mist]. Avoid contact with skin [eyes or clothing]. [Appropriate first aid statement required.].	Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.
IV . . .	[No precautionary statements required.].	[No precautionary statements required.].

(ii) Environmental hazards. Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury or damage. Examples of the hazard statements and the circumstances under which they are required follow:

(A) If a pesticide intended for outdoor use contains an active ingredient with a mammalian acute oral LD_{50} of 100 or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(B) If a pesticide intended for outdoor use contains an active ingredient with a fish acute LC_{50} of 1 ppm or less, the statement "This Pesticide is Toxic to Fish" is required.

(C) If a pesticide intended for outdoor use contains an active ingredient with an avian acute oral LD_{50} of 100 mg/kg or less, or a subacute dietary LC_{50} of 500 ppm or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(D) If either accident history or field studies demonstrate that use of the pesticide may result in fatality to birds, fish or mammals, the statement "This pesticide is extremely toxic to wildlife (fish)" is required.

(E) For uses involving foliar application to agricultural crops, forests, or shade trees, or for mosquito abatement treatments, pesticides toxic to pollinating insects must bear appropriate label cautions.

(F) For all outdoor uses other than aquatic applications the label must bear the caution "Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes."

(iii) Physical or chemical hazards. Warning statements on the flammability or explosive characteristics of the pesticide are required as follows:

Flash point	Required text
(A) PRESSURIZED CONTAINERS	
Flash point at or below 20°F; if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
Flash point above 20°F and not over 80°F or if the flame extension is more than 18 in. long at a distance of 6 in. from the flame.	Flammable. Contents under pressure. Keep away from heat, sparks, and open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
All other pressurized containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
(B) NONPRESSURIZED CONTAINERS	
At or below 20°F	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
Above 20°F and not over 80°F	Flammable. Keep away from heat and open flame.
Above 80°F and not over 150°F	Do not use or store near heat or open flame.

(i) Directions for Use--(1) General requirements--(i) Adequacy and clarity of directions. Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment.

(ii) Placement of directions for use. Directions may appear on any portion of the label provided that they are conspicuous enough to be easily read by the user of the pesticide product. Directions for use may appear on printed or graphic matter which accompanies the pesticide provided that:

(A) If required by the Agency, such printed or graphic matter is securely attached to each package of the pesticide, or placed within the outside wrapper or bag;

(B) The label bears a reference to the directions for use in accompanying leaflets or circulars, such as "See directions in the enclosed circular." and

(C) The Administrator determines that it is not necessary for such directions to appear on the label.

(iii) Exceptions to requirement for direction for use--(A) Detailed directions for use may be omitted from labeling of pesticides which are intended for use only by manufacturers of products other than pesticide products in their regular manufacturing processes, provided that:

(1) The label clearly shows that the product is intended for use only in manufacturing processes and specifies the type(s) of products involved.

(2) Adequate information such as technical data sheets or bulletins, is available to the trade specifying the type of product involved and its proper use in manufacturing processes;

(3) The product will not come into the hands of the general public except after incorporation into finished products; and

(4) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(B) Detailed directions for use may be omitted from the labeling of pesticide products for which sale is limited to physicians, veterinarians, or druggists, provided that:

(1) The label clearly states that the product is for use only by physicians or veterinarians;

(2) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment; and

(3) The product is also a drug and regulated under the provisions of the Federal Food, Drug and Cosmetic Act.

(C) Detailed directions for use may be omitted from the labeling of pesticide products which are intended for use only by formulators in preparing pesticides for sale to the public, provided that:

(1) There is information readily available to the formulators on the composition, toxicity, methods of use, applicable restrictions or limitations, and effectiveness of the product for pesticide purposes;

(2) The label clearly states that the product is intended for use only in manufacturing, formulating, mixing, or repacking for use as a pesticide and specifies the type(s) of pesticide products involved;

(3) The product as finally manufactured, formulated, mixed, or repackaged is registered; and

(4) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(2) Contents of Directions for Use. The directions for use shall include the following, under the headings "Directions for Use":

(i) The statement of use classification as prescribed in 162.10(j) immediately under the heading "Directions for Use."

(ii) Immediately below the statement of use classification, the statement "It is a violation of Federal law to use this product in a manner inconsistent with its labeling."

(iii) The site(s) of application, as for example the crops, animals, areas, or objects to be treated.

(iv) The target pest(s) associated with each site.

(v) The dosage rate associated with each site and pest.

(vi) The method of application, including instructions for dilution, if required, and type(s) of application apparatus or equipment requried.

(vii) The frequency and timing of applications necessary to obtain effective results without causing unreasonable adverse effects on the environment.

(viii) Specific limitations on reentry to areas where the pesticide has been applied, meeting the requirements concerning reentry provided by 40 CFR Part 170.

(ix) Specific directions concerning the storage and disposal of the pesticide and its container, meeting the requirements of 40 CFR Part 165. These instructions shall be grouped and appear under the heading "Storage and Disposal." This heading must be set in type of the same minimum sizes as required for the child hazard warning (See Table in § 162.10(h)(1)(iv).)

(x) Any limitations or restrictions on use required to prevent unreasonable adverse effects, such as:

(A) Required intervals between application and harvest of food or feed crops.

(B) Rotational crop restrictions.

(C) Warnings as required against use on certain crops, animals, objects, or in or adjacent to certain areas.

(D) [Reserved]

(E) For restricted use pesticides, a statement that the pesticide may be applied under the direct supervision of a certified applicator who is not physically present at the site of application but nonetheless available to the person applying the pesticide, unless the Agency has determined that the pesticide may only be applied under the direct supervision of a certified applicator who is physically present.

(F) Other pertinent information which the Administrator determines to be necessary for the protection of man and the environment.

(j) Statement of Use Classification. By October 22, 1976, all pesticide products must bear on their labels a statement of use classification as described in paragraphs (j)(1) and (2) of this section. Any pesticide product for which some uses are classified for general use and others for restricted use shall be separately labeled according to the labeling standards set forth in this subsection, and shall be marketed as separate products with different registration numbers, one bearing directions only for general use(s) and the other bearing directions for restricted use(s) except that, if a product has both restricted use(s) and general use(s), both of these uses may appear on a product labeled for restricted use. Such products shall be subject to the provisions of § 162.10(j)(2).

(1) General Use Classification. Pesticide products bearing directions for use(s) classified general shall be labeled with the exact words "General Classification" immediately below the heading "Directions for Use." And reference to the general classification that suggests or implies that the general utility of the pesticide extends beyond those purposes and uses contained in the Directions for Use will be considered a false or misleading statement under the statutory definitions of misbranding.

(2) Restricted Use Classification. Pesticide products bearing direction for use(s) classified restricted shall bear statements of restricted use classification on the front panel as described below:

(i) Front panel statement of restricted use classification. (A) At the top of the front panel of the label, set in type of the same minimum sizes as required for human hazard signal words (see table in § 162.10(h)(1)(iv)), and appearing with sufficient prominence relative to other text and graphic material on the front panel to make it unlikely to be overlooked under customary conditions of purchase and use, the statement "Restricted Use Pesticide" shall appear.

(B) Directly below this statement on the front panel, a summary statement of the terms of restriction imposed as a precondition to registration shall appear. It use is restricted to certified applicators, the following statement is required: "For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification." If, however, other regulatory restrictions are imposed, the Administrator will define the appropriate wording for the terms of restriction by regulation.

(k) Advertising. [Reserved]

[40 FR 28268, July 3, 1975; 40 FR 32329, Aug. 1, 1975; 40 FR 38571, Aug. 21, 1975, as amended at 43 FR 5786, Feb. 9, 1978]

LABELING REQUIREMENTS OF THE FIFRA, AS AMENDED

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
1	Product name	All products	Front panel	Center front panel	
2	Company name and address	All products	None	Bottom front panel or end of label text	If registrant is not the producer, must be qualified by "Packed for . . .," "Distributed by. . .," etc.
3	Net contents	All products	None	Bottom front panel or end of label text	May be in metric units in addition to U.S. units
4	EPA Reg. No.	All products	None	Front panel	Must be in similar type size and run parallel to other type.
5	EPA Est. No.	All products	None	Front panel, immediately before or following Reg. No.	May appear on the container instead of the label.
6A	Ingredients statement	All products	Front panel	Immediately following product name	Text must run parallel with other text on the panel.
6B	Pounds/gallon statement	Liquid products where dosage given as lbs. ai/unit area	Front panel	Directly below the main ingredients statement	
7	Front panel precautionary statements	All products	Front panel		All front panel precautionary statements must be grouped together, preferably blocked.
7A	Keep Out of Reach of Children (Child hazard warning)	All products	Front panel	Above signal word	Note type size requirements.
7B	Signal word	All products	Front panel	Immediately below child hazard warning	Note type size requirements.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
7C	Skull & crossbones and word POISON (in red)	All products which are Category I based on oral, dermal, or inhalation toxicity	Front panel	Both in close proximity to signal word	
7D	Statement of practical treatment	All products in Categories I, II, and III	Category I: Front panel unless referral statement is used. Others: Grouped with side panel precautionary statements.	Front panel for all.	
7E	Referral statement	All products where precautionary labeling appears on other than front panel.	Front panel		
8	Side/back panel precautionary statements	All products	None	Top or side of back panel preceding directions for use	Must be grouped under the headings in 8A, 8B, and 8C; preferably blocked.
8A	Hazards to humans and domestic animals	All products in Categories I, II, and III	None	Same as above	Must be preceded by appropriate signal word.
8B	Environmental hazards	All products	None	Same as above	Environmental hazards include bee caution where applicable.

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
8C	Physical or chemical hazards	All pressurized products, others with flash points under 150°F	None	Same as above	
9A	Restricted block	All restricted products	Top center of front panel	Preferably blocked	Includes a statement of the terms of restriction. The words "RESTRICTED USE PESTICIDE" must be same type size as signal word.
9C	Misuse statement	All products	Immediately following heading of directions for use		
10A	Reentry statement	All cholinesterase inhibitors	In the directions for use	Immediately after misuse statement	
10C	Storage and disposal block	All products	In the directions for use	Immediately before specific directions for use or at the end of directions for use	Must be set apart and clearly distinguishable from from other directions for use.
10D	Directions for use	All products	None	None	May be in metric as well as U.S. units

Appendix B-4

PHYSICAL-CHEMICAL HAZARDS

Criteria	Required Label Statement
I. Pressurized Containers	
A. Flashpoint at or below 20°F; or if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
B. Flashpoint above 20°F and not over 80°F; or if the flame extension is more than 18 inches long at a distance of 6 inches from the valve opening.	Flammable. Contents under pressure. Keep away from heat, sparks, and flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
C. All other pressurized containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
II. Non-Pressurized Containers	
A. Flashpoint at or below 20°F.	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
B. Flashpoint above 20°F and not over 80°F.	Flammable. Keep away from heat and open flame.
C. Flashpoint over 80°F and not over 150°F.	Do not use or store near heat and open flame.
D. Flashpoint above 150°F.	None required.

APPENDIX C

CONTAINER DISPOSAL INSTRUCTIONS

CONTAINER DISPOSAL INSTRUCTIONS

The label of each product must bear container disposal instructions appropriate to the type of container.

1. Domestic use products must bear one of the following container disposal statements:

Container Type	Statement
Non-aerosol products (bottles, cans, jars)	Do not reuse container (bottle, can, jar). Rinse thoroughly before discarding in trash.
Non-aerosol products (bags)	Do not reuse bag. Discard bag in trash.
Aerosol products	Replace cap and discard containers in trash. Do not incinerate or puncture.

2. All other products must bear container disposal instructions, based on container type, listed below:

Container Type	Statement
Metal containers (non-aerosol)	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
Plastic containers	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Glass containers	Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.
Fiber drums with liners	Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused[1], dispose of in the same manner.
Paper and plastic bags	Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.
Compressed gas cylinders	Return empty cylinder for reuse (or similar wording)

1/ Manufacturer may replace this phrase with one indicating whether and how fiber drum may be reused.

APPENDIX D

FARMWORKER SAFETY LABEL REQUIREMENTS (PR NOTICE 83-2)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MAR 29 1983

PR NOTICE 83-2

NOTICE TO MANUFACTURERS, FORMULATORS AND REGISTRANTS OF PESTICIDES

Attention: Persons Responsible for Federal Registrations of Pesticides

This notice is to inform you that the labels of all outdoor agricultural use products which are applied to crops whose culture requires hand labor are required to bear the following information under the Farmworker Safety Label Improvement Program. No application for amended registration is required, provided you use the exact wording contained in this Notice. All affected products released for shipment after December 31, 1984 must be relabeled accordingly.

For the purposes of this Label Improvement Program, the terms "reentry intervals", "farmworkers", and "protective clothing" used in this notice are as defined in 40 CFR 170.2. Reentry interval means the period of time immediately following the application of a pesticide to a field when unprotected workers should not enter. Farmworker refers to any person or persons engaged in agricultural hand labor in the field. Protective clothing means, at least, a hat or other suitable head covering, a long sleeved shirt and long legged trousers or a coverall type garment (all of closely woven fabric covering the body, including the arms and legs), shoes and socks.

The term hand labor tasks, as used in this Notice, is defined as commonly recognized crop production activities such as harvesting, detasselling, thinning, weeding, topping, planting, sucker removal, summer pruning, moving irrigation equipment and other hand labor tasks performed in the field by farmworkers who will come in substantial contact with pesticide treated surfaces, such as plants or plant parts. For the purposes of this notice, mixing, loading, flagging, and equipment operation are considered to be part of the application of the pesticide and are not normally considered to be hand crop production tasks, and therefore, are not subject to these provisions. At a minimum, the following crops have been determined to employ hand labor tasks:

Citrus Fruit
Cucurbits
Fruiting Vegetables
Leafy Vegetables
Root Crop Vegetables
Onions
Pome Fruits
Stone Fruits
Tobacco
Figs
Mango
Olives
Pineapples
Small Fruits (berries, grapes, nuts)
Corn (hybrid seed, sweet and pop)

Registrants are responsible for determining whether use of their products would involve any other crop activities that meet the definition for hand labor tasks normally performed by farmworkers and are, thus, subject to this Notice.

While "scouting" for determining efficacy may result in potential exposure, it is not considered to be a commonly recognized hand labor crop production task customarily performed by farmworkers and therefore would normally be excluded from the hand labor criteria of this Notice. However, if the definition of hand labor would cover scouting for a particular use, then these provisions would apply.

I. PRODUCTS AFFECTED:

All products with outdoor agricultural uses which are applied to crops utilizing hand labor tasks will be required to bear general precautionary label language about farmworker safety (see Section II.A.) In addition, the labels of the following pesticides, either as sole active ingredients or in combination with other pesticides, must bear specific precautionary label language about reentry and farmworker safety (see Section II. A. and B.).

Ethyl Parathion
Methyl Parathion
Azinphos Methyl
Demeton
Monocrotophos
Phosalone
Carbophenothion
Endrin
Metasystox-R
Bidrin
Ethion

The requirements set forth in this Notice do not apply to: (1) Mosquito abatement treatments and related public pest control programs; (2) Greenhouse treatments; (3) Livestock and other animal treatments; (4) Treatment of golf courses, forest uses and similar nonagricultural areas; (5) Any uses, except pesticides with systemic modes of action, for which soil incorporation is required.

The reentry intervals for the eleven pesticides listed above and EPN were established through regulation at 40 CFR 170. EPN was excluded from this label improvement action because an RPAR is currently under negotiation. Registrants will be notified separately of requirements resulting from the RPAR action.

EPA, as part of the reregistration process, is evaluating the reentry intervals and protective clothing requirements for all pesticides including the ones addressed in this label improvement program. Registrants will be advised through the Registration Standards Program if future label changes are necessary.

II. REQUIRED LABEL CHANGES:

The following statements contain either the exact wording that must appear on the affected product labels, or are explicit in indicating the type of information that must be conveyed in specific portions of the label text. See attached sample product label for proper placement of each statement listed in this Section (A and B).

A. General Worker Protection Statements:

The labels of all products covered by this notice must bear the following general precautionary statements about farmworker safety. See the sample label provided in attachment B for the proper location for these statements.

1. "Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons."

2. "It is a violation of Federal Law to use this product in a manner inconsistent with its labeling."

3. The labels of all products in Toxicity Category I and II, in addition to the English signal word, must include the Spanish language equivalent on the front panel. The appropriate Spanish signal word, "PELIGRO" (for DANGER) or "AVISO" (for WARNING) must appear in capital letters of the same type size as the equivalent English signal word.

4. Agricultural products in Toxicity Category I and II must bear minimum Spanish language precautionary statements. The following precautionary statement must be placed on the label in proximity to the Spanish signal word:

   "PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que le etiqueta haya sido explicado ampliamente".

   (TRANSLATION: TO THE USER: If you cannot read English, do not use this product until the label has been fully explained to you. The English translation of the Spanish precautionary statement is not required to appear on your product label.)

5. All agricultural use products applied to crops utilizing hand labor tasks, except as specified in Section B (1) of this Notice, must bear the following label statement:

   "Do not enter treated areas without protective clothing until sprays have dried (or, if appropriate, dusts have settled)."

6. "Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information."

7. "Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. (Indicate specific oral warnings which inform workers of areas or fields that may not be entered without specific protective clothing, period of time field must be vacated and appropriate actions to take in case of accidental exposure.) When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information: '(Appropriate signal word DANGER or WARNING). Area treated with (name of pesticide) on (date of application). Do not enter without appropriate protective clothing for (insert here reentry interval for your product). (insert here actions to take in case of accidental exposure.)'" This statement may either appear on the label (see Attachment B for specific location) or on the labeling accompanying the product.

B. Specific Reentry and Farmworker Safety Statements:

Because of their inherent human toxicity and to reduce risks for crop use patterns utilizing hand labor, the Agency has determined that all products with reentry intervals established through 40 CFR 170 must bear the following label statement:

"Do not enter treated areas for (insert here appropriate reentry time interval from chart below) hours unless appropriate protective clothing is worn."

Reentry Intervals

Ethyl Parathion	48 hrs.	Monocrotophos	48 hrs.	Demeton	48 hrs.
Metasystox-R	48 hrs.	Phosalone	24 hrs.	Bidrin	48 hrs.
Methyl Parathion	48 hrs.	Carbophenothion	48 hrs.	Ethion	24 hrs.
Azinphos Methyl	24 hrs.	Endrin	48 hrs.		

III. Compliance:

It is the responsibility of the registrants to ensure that the labels of their products, including distributor products, contain specific instructions pertaining to farmworker safety. Existing stocks of products in channels of trade (that is, out of the registrant's physical possession) prior to December 31, 1984, need not be relabeled. All products released for shipment after December 31, 1984, must meet the requirements of this Notice, or they will be deemed misbranded under Section 2(q)(1)(G). Failure to revise product labeling in accordance with this Notice may also result in the initiation of cancellation proceedings.

If you wish to make changes not specified in this Notice, or to modify any of the required statements, you must submit an application for amended registration to the address listed below:

(Product Manager for your product listed in Attachment A)
Registration Division (TS-767-C)
U.S. Environmental Protection Agency

IV. Further Information:

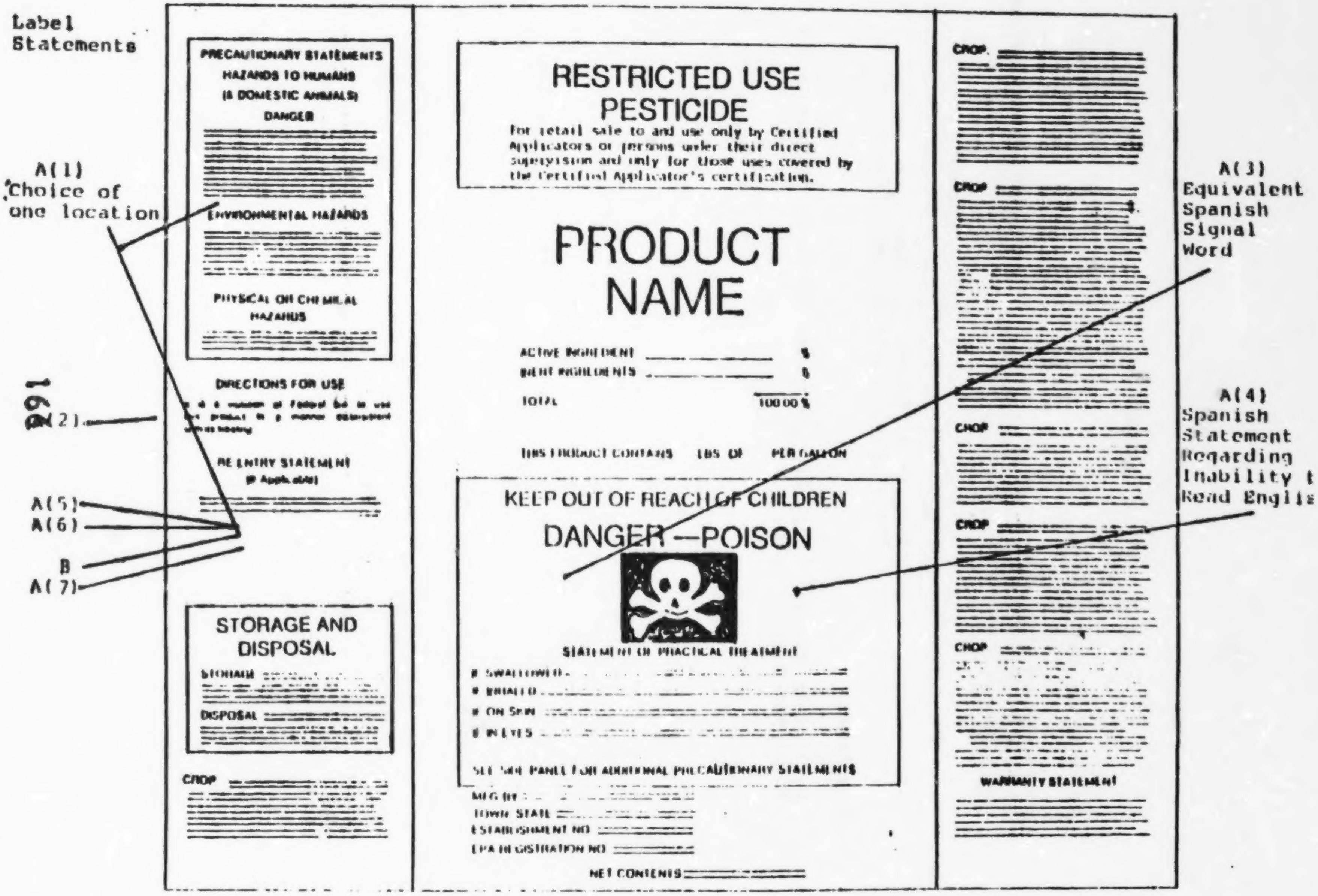
Questions on this Notice may be directed to the appropriate Product Manager or Richard King, Policy & Liaison Staff, Registration Division, at (703) 557-0592.

Douglas D. Campt, Director
Registration Division (TS-767-C)

Attachments

A. Product Manager Assignments (Attachment A is not included in this document.)
B. Sample Product Label

ATTACHMENT B - Sample Label


Label Statements
A(1) Choice of one location
A(2)
A(5)
A(6)
B
A(7)
A(3) Equivalent Spanish Signal Word
A(4) Spanish Statement Regarding Inability t Read Englis
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS (& DOMESTIC ANIMALS)
DANGER
ENVIRONMENTAL HAZARDS
PHYSICAL OR CHEMICAL HAZARDS
DIRECTIONS FOR USE
RE ENTRY STATEMENT (If Applicable)
STORAGE AND DISPOSAL
STORAGE
DISPOSAL
CROP
RESTRICTED USE PESTICIDE
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.
PRODUCT NAME
ACTIVE INGREDIENT
INERT INGREDIENTS
TOTAL
100.00%
THIS PRODUCT CONTAINS LBS OF PER GALLON
KEEP OUT OF REACH OF CHILDREN
DANGER—POISON
STATEMENT OF PRACTICAL TREATMENT
IF SWALLOWED
IF INHALED
IF ON SKIN
IF IN EYES
SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS
MFG BY
TOWN STATE
ESTABLISHMENT NO
EPA REGISTRATION NO
NET CONTENTS
CROP
CROP
CROP
CROP
CROP
WARRANTY STATEMENT

APPENDIX E

FIFRA §3(c)(2)(B) SUMMARY SHEET
(EPA FORM 8580-1)

OMB Approval No. 2000-0468

FIFRA SECTION 3(C)(2)(B) SUMMARY SHEET

EPA REGISTRATION NO.

PRODUCT NAME

APPLICANT'S NAME

DATE GUIDANCE DOCUMENT ISSUED

With respect to the requirement to submit "generic" data imposed by the FIFRA section 3(C)(2)(B) notice contained in the referenced Guidance Document, I am responding in the following manner:

☐ 1. I will submit data in a timely manner to satisfy the following requirements. If the test procedures I will use deviate from (or are not specified in) the Registration Guidelines or the Protocols contained in the Reports of Expert Groups to the Chemicals Group, OECD Chemicals Testing Programme, I enclose the protocols that I will use:

☐ 2. I have entered into an agreement with one or more other registrants under FIFRA section 3(C)(2)(B)(ii) to satisfy the following data requirements. The tests, and any required protocols, will be submitted to EPA by:

NAME OF OTHER REGISTRANT

☐ 3. I enclose a completed "Certification of Attempt to Enter Into an Agreement with Other Registrants for Development of Data" with respect to the following data requirements:

☐ 4. I request that you amend my registration by deleting the following uses (this option is not available to applicants for new products):

☐ 5. I request voluntary cancellation of the registration of this product. (This option is not available to applicants for new products.)

REGISTRANT'S AUTHORIZED REPRESENTATIVE	**SIGNATURE**	**DATE**

EPA Form 8580-1 (10-82)

APPENDIX F

CERTIFICATION OF ATTEMPT TO ENTER INTO AN AGREEMENT WITH OTHER REGISTRANTS FOR DEVELOPMENT OF DATA

(EPA FORM 8580-6)

OMB Approval No. 2000-0468

(To qualify, certify ALL four items)

CERTIFICATION OF ATTEMPT TO ENTER INTO AN AGREEMENT WITH OTHER REGISTRANTS FOR DEVELOPMENT OF DATA

1. I am duly authorized to represent the following firm(s) who are subject to the requirements of a Notice under FIFRA Section 3(c)(2)(B) contained in a Guidance Document to submit data concerning the active ingredient:

GUIDANCE DOCUMENT DATE

ACTIVE INGREDIENT

NAME OF FIRM	EPA COMPANY NUMBER

(This firm or group of firms is referred to below as "my firm".)

2. My firm is willing to develop and submit the data as required by that Notice, if necessary. However, my firm would prefer to enter into an agreement with one or more other registrants to develop jointly, or to share in the cost of developing, the following required items or data:

3. My firm has offered in writing to enter into such an agreement. Copies of the offers are attached. That offer was irrevocable and included an offer to be bound by an arbitration decision under FIFRA Section 3(c)(2)(B)(iii) if final agreement on all terms could not be reached otherwise. This offer was made to the following firm(s) on the following date(s):

NAME OF FIRM	DATE OF OFFER

However, none of those firm(s) accepted my offer.

4. My firm requests that EPA not suspend the registration(s) of my firm's product(s), if any of the firms named in paragraph (3) above have agreed to submit the data listed in paragraph (2) above in accordance with the Notice. I understand EPA will promptly inform me whether my firm must submit data to avoid suspension of its registration(s) under FIFRA Section 3(c)(2)(B). (This statement does not apply to applicants for new products.) I give EPA permission to disclose this statement upon request.

TYPED NAME	SIGNATURE	DATE

EPA Form 8580-6 (10-82)

APPENDIX G

FORMULATOR'S EXEMPTION STATEMENT

FORMULATOR'S EXEMPTION STATEMENT
(40 CFR 152.85)

EPA File Symbol/Reg. No. ______________ Product Name ______________________

Applicant's Name and Address ____

____

____

____

As an authorized representative of the applicant for registration of the product identified above, I hereby certify that:

(1) This product contains the active ingredient(s): ________________

____

____

(2) Each active ingredient listed in paragraph (1) is present solely as the result of the incorporation into the product (during formulation or packaging) of another product which contains that active ingredient, which is registered under FIFRA sec. 3, and which is purchased by us from another producer.

(3) Indicate by circling (A) or (B) below which paragraph applies:

(A) An accurate Confidential Statement of Formula (EPA Form 8570-4) for the above identified product is attached to this statement. That formula statement indicates, by company name, registration number and product name, the source of the active ingredient(s) listed in paragraph (1).

OR

(B) The Confidential Statement of Formula dated __________ on file with the EPA is complete, current and accurate and contains the information required on the current CSF Form No. 8570-4. The registered source(s) of the active ingredient(s) listed in paragraph (1) is/are listed below:

Active ingredient	Source: Product name and Reg. No.

Signature ______________________________

Date ________________ Title ______________________________

EPA Form (April 1985)

BIBLIOGRAPHY

Guide to Use of This Bibliography

1. CONTENT OF BIBLIOGRAPHY. This bibliography contains citations of all studies considered relevant by EPA in arriving at the positions and conclusions stated elsewhere in the Standard. Primary sources for studies in this bibliography have been the body of data submitted to EPA and its predecessor agencies in support of past regulatory decisions. Selections from other sources including the published literature, in those instances where they have been considered, will be included.

2. UNITS OF ENTRY. The unit of entry in this bibliography is called a "study." In the case of published materials, this corresponds closely to an article. In the case of unpublished materials submitted to the Agency, the Agency has sought to identify documents at a level parallel to the published article from within the typically larger volumes in which they were submitted. The resulting "studies" generally have a distinct title (or at least a single subject), can stand alone for purposes of review, and can be described with a conventional bibliographic citation. The Agency has attempted also to unite basic documents and commentaries upon them, treating them as a single study.

3. IDENTIFICATION OF ENTRIES. The entries in this bibliography are sorted numerically by "Master Record Identifier," or MRID, number. This number is unique to the citation, and should be used at any time specific reference is required. It is not related to the six-digit "Accession Number" which has been used to identify volumes of submitted studies; see paragraph 4(d)(4) below for a further explanation. In a few cases, entries added to the bibliography late in the review may be preceded by a nine-character temporary identifier. These entries are listed after all MRID entries. This temporary identifier number is also to be used whenever specific reference is needed.

4. FORM OF ENTRY. In addition to the Master Record Identifier (MRID), each entry consists of a citation containing standard elements followed, in the case of material submitted to EPA, by a description of the earliest known submission. Bibliographic conventions used reflect the standards of the American National Standards Institute (ANSI), expanded to provide for certain special needs.

a. Author. Whenever the Agency could confidently identify one, the Agency has chosen to show a personal author. When no individual was identified, the Agency has shown an identifiable laboratory or testing facility as author. As a last resort, the Agency has shown the first submitter as author.

b. Document Date. When the date appears as four digits with no question marks, the Agency took it directly from the document. When a four-digit date is followed by a question mark, the bibliographer deduced the date from evidence in the document. When the date appears as (19??), the Agency was unable to determine or estimate the date of the document.

c. Title. In some cases, it has been necessary for Agency bibliographers to create or enhance a document title. Any such editorial insertions are contained between square brackets.

d. Trailing Parentheses. For studies submitted to the Agency in the past, the trailing parentheses include (in addition to any self-explanatory text) the following elements describing the earliest known submission:

    (1) Submission Date. The date of the earliest known submission appears immediately following the word "received."

    (2) Administrative Number. The next element, immediately following the word "under," is the registration number, experimental use permit number, petition number, or other administrative number associated with the earliest known submission.

    (3) Submitter. The third element is the submitter, following the phrase "submitted by." When authorship is defaulted to the submitter, this element is omitted.

    (4) Volume Identification (Accession Number). The final element in the trailing parentheses identifies the EPA accession number of the volume in which the original submission of the study appears. The six-digit accession number follows the symbol "CDL," standing for "Company Data Library." This accession number is in turn followed by an alphabetic suffix which shows the relative position of the study within the volume. For example, within accession number 123456, the first study would be 123456-A; the second, 123456-B; the 26th, 123456-Z; and the 27th, 123456-AA.

OFFICE OF PESTICIDE PROGRAMS
REGISTRATION STANDARD BIBLIOGRAPHY
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00018372	Griggs, D.; Macy, T.; Davis, N.; et al. (1972) EL-119--Soybeans: Residue Data on EL-119 3,5-Dinitro-N4,N4-di(n-propyl)sulfanilamide plus Chloramben (Amiben, Dinoseb (Premerge), and Linuron (Lorox) in Soybean Foliage and Seed: (Experimental Permit). Summary of studies 210007-C through 210007-T. (Unpublished study received Sep 15, 1972 under 1471-EX-36; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:210007-U)
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00026762	Arthur, B.H.; Worth, H.M.; Hoffman, D.G.; et al. (1972) Guinea Pig Sensitization Study with EL119 Study G-D 7-72. (Unpublished study received Dec 12, 1979 under 1471-96; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:241537-H)

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00088513	Kitchen, D.N.; Arthur, B.H.; Gibson, W.R.; et al. (1977) Acute Toxicity: Surflan 4 AS. (Unpublished study received May 1, 1978 under 1471-112; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:233839-F)
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